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THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXX McALESTER, OKLAHOMA, OCTOBER, 1937 Number 10

Published Monthly at McAlester, Oklahoma, under direction of the Council.

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The "Regimented Rationale" in the Treatment of Rheumatic Disease*

WILLIAM K. ISHMAEL, M.D. AND EARL D. McBRIDE, M.D., F.A.C.S.
OKLAHOMA CITY

Chronic arthritis through the ages has been a persistent tormentor of human beings. Likewise, those seeking to control the disease through medical science have found the true cause and cure an enigma.

The initial evidence of its early intrusion of the mechanical structures of the body often exhibited through surprise attacks of "cricks," "catches" and "aches," may make the victim a subject of derision for his misfortune and even may be looked on with but passing concern by the person thus afflicted, when once he has obtained relief from his discomfort. He may little realize that the repetition of such signs indicates the subtle invasion of his body with a disease that will gradually cripple and permanently incapacitate him. When once the pain is persistent and the structures obviously involved, however, the arthritic is quick to try any remedy that promises relief. He is difficult to satisfy, and is a true subject for the charlatan and patent medicine vendor. Thus it is that the painful restrictions of the characteristic symptoms of the chronic rheumatic have brought into existence more cure panaceas than any other disease. Wave after wave of promising cures have swept through the ages of time only to be discarded as perhaps helpful but not specific. Those searching for relief have been steamed, rubbed, adjusted and manipulated; dosed with foul smelling mineral waters, saturated with pain relief drugs, injected with intravenous medications and relieved of their teeth, tonsils and other accessories, only to find that as time rolled on the physical impairment progressed, oftentimes to complete miserable disability. Hopes were greatly raised fifty years ago when Billington established the importance of focal infection, but even though thorough removal of all possible foci is acknowledged as an essential phase of the treatment, the results in most instances are only a temporary halting of the progress of the invading disease. "Once a rheumatic, always a rheumatic," is not far from a true saying.

What is the answer? Certainly it would be Utopia if a specific remedy could be established, but none yet has been proved. Still the rheumatic patient must be treated. What we need to realize is that the nature of the disease is constitutionally insidious and its progress persistently disabling so that to accomplish permanent therapeutic results the clinical complexity as a systemic whole must be the criterion in contra-distinction to the delusive satisfaction of removing teeth and tonsils or prescribing symptom relieving drugs. To adopt the more thorough program it will be necessary to regiment all the diagnostic and therapeutic influences of medical research. The attack must be consolidated to the broadside with an armamentorium of therapeutic weapons fully outfitted

*Read before the Section on General Medicine, Annual Meeting, Oklahoma State Medical Association, Tulsa, May 12, 1937.

with information and assistance from the laboratory, the bacteriologist, the radiologist, the physiologist, the chemist, the specialist clinician, the dietitician and the orthopedist. Information thus obtained, however, must be evaluated and co-ordinated for use of the family physician or the one who is to maintain continuous control over the patient.

When such a comprehensive regime of management has replaced the poorly planned, haphazard symptom relieving methods of temporary effectiveness and the rheumatic patient as well as the general public is taught the reality of procrastination in seeking competent diagnosis and is awakened to the fickleness of trying out undirected cures then will there be a realization that the chronic arthritic can exert a normal span of life within his limits of disability just as the patient with tuberculosis or diabetes has found he can do. It seems appropriate to designate such a system of treatment the "Regimented Rationale."

OUTLINE OF REGIMENTED RATIONALE

In outline, the "regimented rationale" would be somewhat as follows:

1. Recognition on the part of the physician that the disease must be classified and treated according to etiological diagnosis.
2. A detailed systematic investigation of each particular case, using all facilities of clinical and laboratory procedures available.
3. Consultation with specialists, such as dentistry, otolaryngology, proctology and others.
4. Thorough correlation and management of the case through cooperation between the one who actively manages the case and those who have brought about the information as the result of clinical and laboratory research.
5. Details of treatment:
   a. Medical relief of pain and immediate symptoms.
   b. correction of constitutional disturbances:
      1. Metabolic disturbances.
      2. Endocrine influences.
      3. Vitamine deficiencies.
      4. Gall bladder, intestinal and other systemic factors.
      5. Allergy phenomena.
   c. Removal of focal infections.
   d. Specific therapy; vaccines.
   e. Orthopedic measures.
   f. Physcial therapy.
   g. Drugs.

Such a program is successful provided it is carried out thoroughly, but any partial application is bound to fail.

MEDICAL RELIEF OF PAIN

The morale of the rheumatic is often greatly broken and it is important to establish renewed confidence through early relief of painful symptoms. There are many useful drugs for this purpose; the most popular one being the salicylates in one form or another. A definite rest routine is outlined. Factors of cold, fatigue, too much exercise and deleterious habits are corrected. General supportive treatment is given especially to correct anemia, nervousness or any systemic debility that may be present.

DIAGNOSIS AND ETIOLOGICAL CLASSIFICATION

The recognized classifications of chronic arthritis should, of course, be understood and used; but when preparing to undertake treatment of a given case, there are two general categories in which to place the case from the etiological standpoint. First, does it have an acute, subacute or chronic infectious aspect; or, second, is it more of a non-infectious nature in which such factors as vitamin, endocrine, allergic, metabolic or traumatic disturbances render an important influence?

LABORATORY PROCEDURES

Considerable laboratory information is essential for the etiological diagnosis and must be obtained in each case. A complete blood count to determine the amount of anemia and leukocytosis; a sedimentation time to indicate infection; a Schilling hemogram to determine activity of infection; a streptococcic agglutination test to determine streptococcic sensitivity; a Wassermann to rule out syphilis. A basal me-

tabolism rate is essential; a sugar tolerance test for carbohydrate metabolism; blood chemistry in cases suspicious of gout; a leukopenic index for bacterial or other hypersensitivity; complement fixation tests; cultures from teeth, tonsils, sinuses, prostate and other infected areas; x-rays of joints for diagnostic aid and other tests of diagnostic benefit indicated in particular symptoms syndrones.

CONSULTATION WITH SPECIALISTS

In making a thorough study of the case, many diagnostic angles arise which involve the special fields of medicine. All diagnostic and therapeutic consultations should be directed and coordinated by the physician in charge of the case. The dentist, for instance, may make recommendations regarding extraction of teeth, or the throat specialist may condemn the tonsils, but it is not wise to place too great a dependence on such procedures or to be too hasty or too radical. No disease requires a closer study of all the related systemic factors in etiology than that of chronic arthritis.

CORRELATION AND MANAGEMENT

After the laboratory results are compiled and all features developed in the diagnosis are drawn together, the correlation and management is begun. Recommendations are listed and plans laid to carry them out to the best advantage.

CORRECTION OF CONSTITUTIONAL DISTURBANCES

It is of prime importance that arthritis be considered a systemic disease. Focal infection may be the precipitating causative agent but it is not necessarily the primary etiological factor. A thorough history of symptoms and personal habits dating from childhood is essential in evaluating the distinctive features of the case.

Faulty Metabolism: An abnormal basal metabolic rate is often indicative of systemic depreciation relative to endocrine balance. There may be a delayed glucose removal from the blood stream which increases joint pain. There may be difficult menses with increased rheumatic pain several days before and during the menstrual period. Nervousness and loss of appetite may result from upset calcium-phosphorus metabolism. Especial attention should be given the underweight and overweight.

Endocrine Influences: Thyroid and other endocrine disturbances are frequently observed in the chronic arthritic. Many thyroid deficient cases do not present a picture of thyroid derangement *per se*, but give the picture of ovarian dysfunction. The results of estrin therapy in these cases emphasize the need for further investigation of estrin as an agent for relief of symptoms; first in women with a sharp increase in joint symptoms in the premenstrual periods, and second in women of the menopausal group in whom the onset of joint pains comes with the onset of menopause. This latter group of patients will be discussed later.

Estrin, given to this first group of patients, very frequently causes severe flare-ups of the rheumatic process, but it is of interest to note that none of these patients received benefit from progesterone in the amounts used, although larger doses might prove efficacious. Some of the patients in the first group received complete relief from symptoms with the administration of estrin. However, the treatment is purely substitutional and the original symptoms return when the treatment is stopped. Other supportive treatment is necessary.

Vitamine Deficiencies: There are no laboratory methods available for this determination but very often symptoms are encountered which indicate abnormal growth, abscess, zerophthalmia and night blindness, lowered resistance to infections, defective teeth, deranged lachrynal secretion, etc., associated with arthritis. Patients with these symptoms often show marked improvement under Vitamine A therapy.

Vitamine B1 and B2 are important in rheumatic disease. Symptoms of impaired growth, weakness and fatigue, loss of appetite, disturbances in the metabolism of carbohydrates, low glucose tolerance, hyperglycemia, vague nervous system involvements, polyneuritis, indigestion, constipation, colitis, edema, dermatitis and thickening of the skin, soreness and inflammation of the tongue and mouth, etc., should make one suspect vitamine B1 and B2 deficiency. Recently, I have had several cases respond spectacularly to this

therapy. Treatment should be begun by subcutaneous injection of vitamine B1. Therapy B1 and B2 by mouth should follow. A diet high in vitamine B should also be utilized. All toxins such as alcohol and heavy metals should be deleted.

A patient with petechii, pale and sallow complexion, severe dental caries and loosening and shedding of teeth with spongy, bleeding gums. bone decalcification, etc., should receive heavy vitamine C therapy. These cases have bleeding into the joints and muscles, as well as in the skin and gums, and they showed marked pain and swelling in joints and limbs. Spontaneous fractures are seen in severe cases. The results in these cases are almost dramatic.

Vitamine D has been used extensively for arthritis therapy and possibly has been overdone. Unquestionably, small doses are of benefit in all cases. Large doses in acute cases may prove disastrous. Our attempt to use large doses (100,000 units per day) almost invariably caused increased pain and heat even in chronic cases. However, vitamine D deficiencies must not be overlooked because many patients recover on this therapy. They usually show other evidence of osteomalacia along with a negative calcium and phosphorus retention balance. This type of case is frequently seen in post-partum women who nurse their babies and do not take ample calcium and vitamine D.

Gastro-Intestinal Tract and Diet: Careful attention to the gastro-intestinal tract will usually create an improvement of function in all organs. Much is to be said on this phase of the treatment of arthritis. Faulty digestion, gall bladder affections, constipation and many other factors have an important bearing in many cases. A strict dietary regime will lessen the load and a curtailment of carbohydrates is often indicated.

Allergy Phenomena: The question of allergy in arthritis is not new, but comparably little is known about this angle. Recently, food allergy as a causative agent has been recognized and more cases are reported each day where some specific food serves as the precipitating factor. Striking results are gained when the specific foods are removed and we have found such foods as grapefruit, prunes and coffee to be offending antigens. As a rule, the increased pain, swelling and redness comes on one and one-half to two hours following the ingestion of the food and lasts for about three days. The leukopenic index and intradermal skin tests are used as the laboratory test for sensitivity. More evidence is being produced to show that bacterial infection can produce the rheumatic syndrome by acting as an allergic antigen.

Specific Therapy—Vaccine: Specific therapy although not entirely satisfactory at the present time, it becoming more dependable due to the diligent efforts of those interested in laboratory research on arthritis. Vaccine methods vary greatly, yet, there has been developed a newer aspect especially in regard to the allergic or sensitivity conception of inducing increased resistance to toxic organisms in contradistinction to the Erlich's immunologic conception of combating infections. Infinitesimal doses of especially prepared vaccines are used to produce a characteristic reaction of a euphoric state of well-being rather than large doses which produce shock and febrile reactions.

The dilution of the vaccine is extremely important. It is usually safe to start with 0.5 cc. of a dilution of .000,000,01 organisms per cc. and increase this dose until the desired reaction is reached. The injections should be given every three or four days and the dosage increased or decreased according to the patient's reaction. Very often the dosage is advanced greatly but it is safer to start with the above amount. This type of therapy is more clearly indicated in patients showing increased sedimentation rates, Schilling shift to the left, positive streptococcus agglutination and a positive leukopenic index. It might be said that this group could be classified as chronic streptococcic disease, just as tuberculosis with all its side phenomena is a chronic tubercular disease.

Vaccine therapy, given purely with the idea of desensitization of the bacterial hypersensitivity in a series of one hundred patients with the above findings caused eighty-eight to become pain free and the sedimentation time returned to normal in two months' therapy. General supportive treatment was also instituted. Two of the

above group quit on the grounds that they thought they were receiving aspirin.

High titre antigen reactions are not well understood, but it is obvious that the antigen must be fairly specific. There is some overlapping in the streptococcic series and the vaccine must be prepared from several strains. The one most successful in our hands has been one from cultures of the arthrotropic series of Cecil, Nichols and Stainsby; the Q-33 strain of Homer Swift; the typical strain of Walter Crowe; and five strains isolated in our laboratories. These are mixed in equal proportion, killed with 0.3 per cent phenol solution and proper dilutions are then made. Frequent testing for sterility must be made with the stock kept fresh.

ORTHOPEDIC MEASURES

One of the important features of a regimented management of a rheumatic condition is the orthopedic consideration. As many of the joint changes will be permanent, and ankylosis is likely to occur, it is extremely important to guard correct anatomical position of joints. Correct splinting with casts, corsets and braces, timely manipulation, restoration of joint motion and the amount of weight bearing, require judgment and experience, and mistakes are likely to result in crippling deformities. Acutely inflamed joints require splinting and protection, but as soon as the acute inflammation subsides, motion should be established. Weight-bearing joints should be protected over a long period and full function should be resumed cautiously. Orthopedic consultation frequently is necessary.

Surgical restoration of ankylosed joints may be accomplished but only after all inflammation and rheumatic activity is quiescent. Surgery any place in the body frequently causes a generalized flare-up of the rheumatic process.

PHYSICAL THERAPY

Physical therapy affords, as a whole, the oldest means of attack on the rheumatic problem. The use of physical therapy is far from being appreciated and up until relatively recent times has been in the hands of masseurs, and various cults. The popularity of the various resorts and springs tells us that we are overlooking an important phase in medicine.

The influence and use of heat together with massage and medical gymnastics form the most valuable measure in the realm of physical therapy in relation to arthritis. Such treatment should be given by a competent physical therapy technician under the direct supervision of the physician who is managing the case.

Fever therapy is one special method of heat therapy that has proved to be a specific in gonorrheal arthritis. A temperature of from 104° F. to 106° F. is maintained for three hours or so, and from two to four treatments are necessary.

Massage, hydrotherapy, colonic irrigations, exercises and various high frequency currents may have very definite contraindications. Too many patients with lowered blood pressure, impaired heart action and general debility are subjected to weakening, severe hot baths without medical supervision. Many acute joints are made worse by the indiscriminate use of infra red and various short wave treatments.

Special mention should be made of the administration of acetyl choline derivatives by iontophoresis or galvanism. Again medical supervision is essential to prevent accidents from lowered blood pressure. Very encouraging results can be had in chronic cases.

The therapeutic value of physical therapy can be summed up by listing the definite responses:

1. Prevention of atrophy, correction of deformity, and restoration of a better muscle tone.
2. Improvement of local and general circulation and metabolism.
3. Prevention of ankylosis and restoration of joint motion.

DRUGS

It is impossible to mention here all the measures used to combat rheumatic disease, but perhaps mention should be made of the use of colloidal sulphur, colloidal gold and other heavy salts, chalmoogra oil, bee sting toxin, non-specific proteins, and liver extract. Favorable reports have been

made in all the above, but indications for them have been few.

SUMMARY

The object of these summarized remarks on chronic arthritis is to point out the necessity of regimenting all the combating forces at one's command if one is to treat the disease at all and to warn that it is a disease with the course of a lifetime; so that even though a case may become symptom free and all activity temporarily quieted, the disease should be considere din an arrested state and not as cured. The term "Regimented Rationale" has been coined to characterize the all inclusive attitude toward treatment which is preferred to the more or less experimental haphazard use of drugs and overestimated singular measures of relief.

In general, the most reliable form of therapy falls in three groups: rest, systemic correction, vitamins and high dilution desensitizing vaccines. It is to be remembered that something can be done for the rheumatic and these patients are always extremely grateful for any relief that is given them.

* * *

DISCUSSION

Dr. H. D. Moor, Oklahoma City:

Dr. Ishmael's paper is one of wide general interest to all practitioners of medicine and surgery. The results he has obtained thus far are certainly encouraging. His method of treating these unfortunate people should command a careful study by all of us.

The use of streptococcic vaccine by Dr. Ishmael is of particular interest to me. There are many types of vaccines on the market today for many different conditions and used in several different ways. There are, however, only a few used in connection with human disease of unquestioned value, such as typhoid, rabies, smallpox, diphtheria, and scarlet fever vaccines. I believe we can sum up the status of the rest of them in two words: encouraging but unconvincing. We give vaccines in order to prevent a specific disease or to cure a disease already established. The vaccine acts as an antigen causing a reaction in the body cells that results in the production of specific antibodies. These antibodies constitute in part at least the internal defensive mechanism against the specific disease. Vaccines may also act non-specifically as for example vaccines given for the purpose of inducing a non-specific protein reaction as demonstrated by the use of typhoid vaccine in the treatment of general paresis. The allergists use vaccines for the purpose of desensitizing their patients.

The idea that the reactions of the joint tissues in chronic rheumatoid arthritis is due to a hypersensitivity of these tissues to streptococci or their toxic products is not new. I do not know who first advanced this hypothesis, however, it is frequently encountered in the literature. I have especially in mind Dr. Charles W. Wainwright's article published in the *Journal of the American Medical Association* for November 3, 1934, entitled *"The Treatment of Chronic Rheumatoid Arthritis with Streptococcus Vaccine,"* which states that the relation of streptococci and streptococcic vaccine to chronic rheumatoid arthritis remains in an uncertain and far from established position. He declared that if a relationship exists it might do so in one of three ways:

1. The joint lesion may be the result of the localization of streptococci circulating in the blood stream.
2. The joint lesion may be due to toxins liberated from some focus of streptococcus infection elsewhere in the body.
3. The joint reaction may be allergic in nature and represent hypersensitivity of the joint tissues to streptococci resulting from low grade infections or from the persistence of foci of infection in the body.

Dr. Wainwright made a careful bacteriologic study of the blood in ninety-one cases having rheumatoid arthritis with the following results:

One case positive for streptococcus viridans.

Four cases positive for diphtheroid bacilli.

Four cases positive for staphylococci.

Three cases positive for gram positive bacilli.

The other seventy-nine were negative.

During the winter and spring of 1930 the bacteriology department of the State University Medical School carried out a bacteriologic study of twenty-one cases of rheumatoid arthritis. Our blood cultures were negative in nineteen cases. We secured from one a non-hemolytic streptococci and from another a gram positive strepto-bacillus. Throat cultures from these patients all yielded a positive culture for streptococci except three. From these three we obtained only one throat culture each and it was negative for streptococci.

We failed to obtain a positive stool culture for streptococci or staphylococci in all twenty-one patients. We did skin tests on only three of these patients. Two gave a positive and one a negative result.

Cecil and his co-workers report relatively high percentages of positive blood cultures for streptococci in arthritis, however many other workers' reports agree with Dr. Wainwright's. The lack of uniformity in connection with blood cultures is striking. The results of agglutination tests and the results of skin tests are much more uniform. Wainwright found the sera of forty-six or ninety per cent of fifty-one cases of rheumatoid arthritis to possess agglutins for hemolytic streptococci. He also found all of fifty-five cases of rheumatoid arthritis to whom he gave skin tests using one or more strains of streptococci to react positively. The results of other workers are in close agreement with this. The following percentages found by various investigators illustrate this situation:

*BLOOD CULTURES FROM PATIENTS WITH RHEUMATOID ARTHRITIS

Cecil, Nicholls, Stainsby—
Approximately.
70% Positive Blood Cultures for Streptococci.

Klugh—
70% Positive Blood Cultures for Streptococci.

Gray and Gowen—
58% Positive Blood Cultures for Streptococci.

Wetherby and Clawson—
50% Positive Blood Cultures for Streptococci.

Average—
62% Positive Blood Cultures for Streptococci.

* * *

*Dawson, Omstead, Boots—
2.5% Positive Blood Cultures for Streptococci.

Nye and Waxelbaum—
All Cultures Negative for Streptococci.

Lichtman and Gross—
9% Positive Blood Cultures for Streptococci.

Wainwright—
0.9% Positive Blood Cultures for Streptococci.

Average—
3.1% Positive Blood Cultures for Streptococci.

*Data obtained from Dr. Wainwright's article published in the Journal of the American Medical Association, November 3, 1934.

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*SERUM AGGLUTININS FOR HEMOLYTIC STREPTOCOCCI IN THE BLOOD OF PATIENTS WITH RHEUMATOID ARTHRITIS

Dawson, Omstead, Boots	67% Positive
Nicholls, Stainsby	100% Positive
Keefer, Myers, Oppel	54.5% Positive
Wainwright	90% Positive
Average	77.8% Positive

* * *

*POSITIVE SKIN REACTIONS TO INTRADERMAL INJECTIONS OF STREPTOCOCCI IN RHEUMATOID ARTHRITIS

Wainwright	100% Positive
Birkhaug	47% Positive
Meyers, Keefer, Oppel	70% Positive
Wetherby, Clawson	91.8% Positive
Average	77.2% Positive

*Data obtained from Dr. Wainwright's article published in the Journal of the American Medical Association, November 3, 1934.

Dr. Wainwright's results with the sedimentation test agree with those of Dr. Ismael's. Twenty-one of twenty-eight cases of rheumatoid arthritis to whom Dr. Wainwright gave streptococcus vaccine intravenously showed improvement.

We may still use the words encouraging but unconvincing. However, I am of the opinion that it is highly probable that the value of vaccine in the treatment of rheumatoid arthritis will be established beyond a question of a doubt. I am sure we all wish Dr. Ishmael godspeed in this important work he is doing.

Dr. Wayne M. Hull, Oklahoma City:

Physicians are slowly realizing that no single mode of management can be resorted to in the treatment of rheumatic disease nor in arresting or eliminating the deformities which are prone to develop when the disease follows a progressive course. We are no longer justified in the viewpoint of yesterday in assuming rheumatic disease to be an incurable condition. It is true that many cases may not amend themselves to known methods of treatment, yet improvement in most cases can be expected.

Dr. Ishmael's efforts and results are most convincingly encouraging. I have

had the occasion to observe his work constantly for almost a year and in that time have seen many cases brought through the Out Patient Clinic at University Hospital on stretchers, in wheel chairs, on crutches and with canes and it has been a pleasant surprise to see many of these same individuals returning in a month or two for their treatment unaided, nearly all of these with considerable relief of pain and return of joint movement. The great improvement seen in many of these cases has been almost unbelievable.

The importance of a very thorough survey of each individual case is to be emphasized. A very careful case history and most important, a thorough physical examination must be made in every case. The laboratory studies are of considerable significance in estimating the status of any case of rheumatic disease. It is to be observed from what he has said that there are several of these tests and most of them should be done on every case. These tests are not beyond the reach of the practitioner, the expense is not great and they are not tests requiring unusual technical ability. In any case the value of laboratory studies must not be under-estimated or overlooked and here it may prove a very useful guide in the management and a measure of the patient's reaction to the treatment. To me the blood studies including the Schilling differential, sedimentation, agglutination tests, leukopenic index, B. M. R. and carbohydrate metabolism seem indicated in every new case. Frequent repetition of any that are not normal is to be encouraged, for any degree of improvement may be shown in many cases earlier by laboratory studies than by clinical observations. It is to be recalled that most cases of rheumatic disease are precipitated by infection in which one or more types of organisms from a number of possible strains of streptococci predominate. We must keep in mind that most strains of the rheumatic group are so low in virulence that they cannot act upon the phagocytic leukocytes in the usual manner in producing antibodies.

Swift has shown that the intracutaneous inoculation, especially in the presence of a focal lesion produces an allergic condition, but when an intravenous injection is made with streptococci, immunity with a moderate high titre develops instead of tissue hypersensitivity. This indicates that before any degree of immunity can be expected the patient must be desensitized of his bacterial hypersensitivity. This point is probably very frequently overlooked when vaccine therapy in this disease is considered.

The relation of bacterial invasion to certain endocrine disturbances as pellagra, scurvy, rickets, etc., has been well established and the use of vitamins in the treatment of rheumatic disease occupies a position of unquestioned value in the management of many of these cases as shown by Dr. Ishmael's work. It is certainly easy to overlook this when one's attention is so well occupied on clearing up foci from numerous sources or on many of the other considerations to be taken into account with sufferers of this disease. It is to be hoped that clinicians will be more patient with their management of rheumatic disease than many of us have in the past. Dr. Ishmael's statement that recognition by the physician that the disease covers a course of a "lifetime" is certainly to be amplified. It occurs to me that victims of this disease should be made to realize the significance of this, also to prevent their seeking treatment elsewhere before the clinician's efforts have had time to produce the improvement he has set out to obtain. The "Regimented Rationale" management in the treatment of rheumatic disease certainly appears to be a welcome development in this field of medicine.

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USE OF "BENZEDRINE INHALER" FOR CHILDREN

Vollmer (Arch. Otolaryng., 26:91, July, 1937) treated with "Benzedrine Inhaler" a series of 75 children exhibiting rhinological symptoms due to infection or allergy. The ages varied from one to twelve years.

No difficulty of administration was encountered with either infants or older children. Clinical observaton made fifteen minutes after use of the Inhaler showed marked shrinkage of the nasal mucosa resulting in decongestion of the nasal passages and relief from "stuffiness." All the cases of acute rhinopharyngitis and sinusitis were benefited. Those with otitis media received relief from nasal symptoms although it did not alter the course of the disease. This was also true of two cases of asthma. No results were obtained with two cases of epistaxis.

In no case were any ill effects noted, such as headache, sleeplessness, restlessness or gastro-intestinal disturbance. It is thus concluded that "Benzedrine Inhaler' can be satisfactorily employed with young children for the relief of nasal symptoms due to infectious or allergic edema.

The Value of the Localizing Reactions in Atrophic or Chronic Infectious Arthritis; Non-specific Type*

E. GOLDFAIN, M.D.
OKLAHOMA CITY

The localizing type of reaction in the antigen therapy of atrophic arthritis is interesting as a phase of immunogenic response on the part of highly sensitized tissue cells surrounding a focus of infection.

The characteristics of this reaction consist of pain and swelling or induration at the site of a focus of infection. It will appear when the antigen is injected parenterally either intravenously or subcutaneously. The symptoms usually manifest themselves within twelve to twenty-four hours. Duration of the reaction will be as short as twelve hours. It may persist as long as seventy-two hours.

The pain may be sharp or throbbing. The swelling will be subjective or objective. By subjective is meant a feeling of fullness and tension at the site of the focus of infection.

How can one explain this condition? A study of immunology leads us to the chapter of local protein anaphylaxis. Here is described the "Arthrus Phenomenon." The symptoms of this phenomenon and the localizing reaction are identical.

At present it is generally accepted that hypersensitiveness or anaphylaxis can only take place when the antigen meets sessile antibody receptors attached to the tissue cells.

An explanation of the localizing reaction then could be that the circulating antigen meets with these sessile antibody receptors on the tissue cells about the focus of infection. The result is the reaction. All that is necessary is that the tissue cells have sufficient free receptors and that the dose of antigen be large enough.

The lapse of time between the parenteral injection of antigen and the appearance of the reaction can be explained on the basis of time necessary for the splitting of the antigen to take place and for union with the cell receptors.

From a therapeutic standpoint, in the treatment of arthritis, the localizing reaction, when it occurs, is happily of value. For when it is observed it frequently points to a focus of infection that is chronic, latent, and which often may be overlooked.

A number of cases could be quoted. Two are being set forth below. They illustrate in an admirable way the phenomenon.

FIG. NO. 1

Note area of rarefaction, medial root, second molar. Peridental membrane continuity broken about apex of root.

Case I *Patient C. P.* *Age* 38

LOCKED APICAL DENTAL INFECTION

This case began with pain in the right hip joint area. Examination revealed: Definite pain located in region of right hip joint. Internal and external rotation right thigh caused pain. Medial pressure right greater trochanter caused pain deep in femur head area. Tension on fibrous structures of right groin caused the patient to experience definite pain.

Dental roentgenograms revealed apical infection, left lower second molar.

See illustration, Fig. No. I.

Diagnosis: Atrophic Arthritis.

On March 6, 1933, patient was given the

*Read before Section of General Medicine at the Annual Meeting of Oklahoma State Medical Association, May 11, 1935.

saline antigen extract of 100 organisms polyvalent streptococci.

The only reaction consisted of pain about the lower left second molar, which was definitely diseased. The pain appeared within sixteen hours; lasted 24 hours and required aspirin for relief and comfort. The tooth was devitalized and had not bothered her previously.

Type of Reaction: Localizing or arthrus.

* * *

Case II. *Patient S. J. L.* *Age* 35

Examination revealed rigidity of lumbar spine with spasm of fibromuscular structures of lower back.

Teeth: Those that were devitalized had been removed. Purulent material could be expressed from underneath gum edges.

X-Ray: Extensive sepsis was present in supporting structures of all lower teeth. Definite pockets around virtually all lowers.

See illustration, Fig. No. II.

Diagnosis: Fibromyositis, subacute. Hyperthrophic Spondylitis.

On February 8, 1932, saline extracts of twenty-two thousand organisms polyvalent autogenous streptococcus vaccine were given subcutaneously.

On February 10, 1932, patient developed aching and neuralgic like pains about all his teeth. The whole right side of his face was swollen. This began within 48 hours.

Type of Reaction: Localizing or arthrus.

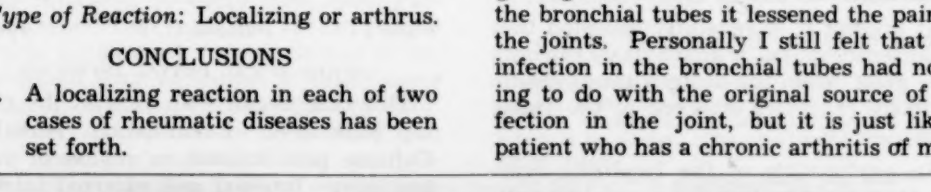
CONCLUSIONS

1. A localizing reaction in each of two cases of rheumatic diseases has been set forth.
2. The parenteral dose of antigen has been so small that the role of non-specific protein reaction is in our opinion eliminated.
3. When this reaction occurs, it gives definite information enabling one to eliminate a source of infection.
4. A warning may be sounded that too large a dose can be harmful by stirring up metastatic foci in the fibro-skeletal structures as well as primary to too great a degree thereby accentuating the damage rather than improving it.
5. It tends to prove that these cases may be placed in the same category as tuberculosis, in which condition it is definitely conceded that an extremely high state of hypersensitiveness to the tuberculin antigen exists.

* * * *

DISCUSSION

Dr. Ray M. Balyeat, Oklahoma City: I would like to discuss an interesting thing which happened to me about one year ago. A doctor brought has father-in-law in and said that he was having rather severe arthritis and he had the chronic infectious type of osteo-arthritis. I did not think very much about it. There was no swelling but lots of pain in the joints and wrists. After getting rid of the infectious material his wrist got well. Since that time I have seen four or five cases. We have found that in getting rid of the infectious material in the bronchial tubes it lessened the pain in the joints. Personally I still felt that the infection in the bronchial tubes had nothing to do with the original source of infection in the joint, but it is just like a patient who has a chronic arthritis of most



(A) RIGHT (B) RIGHT (C) LEFT

FIG. NO. II.

Note marked pockets about second right lower molar; alveolar recession and pockets about other teeth.

any type, severe constipation or acute sore throat will increase the pain in the joints. I think what happened was that where the infection was in the bronchial tubes that 50% to 80% toxemia was causing the pain.

Dr. A. Ray Wiley, Tulsa: I would like to ask a few questions. We will assume you had the rheumatic type of arthritis, do you have any way of telling whether it is entirely rheumatic or entirely hypertrophic or any of the cases of the mixed type? Assume that your hypertrophic type is due entirely to metabolic disturbance and not the infectious type. Is there any question of doing any harm with vaccines in the metabolic type. If you have time I would like to hear you discuss some of these questions and also the preparation of your vaccine in individual and specific cases.

Dr. E. D. McBride, Oklahoma City: From the orthopedic standpoint I have been interested in arthritis for some sixteen years in this town. I do not know of any other problem that is so confusing and difficult to handle as is the arthritis problem. I feel that as doctors and medical men I tell my classes in medical school that we are feeding the quacks and off-brand medical practitioners because of our negligency in this classification. The dentists are treating as much arthritis as the M. D.'s. They are pulling teeth and treating arthritis at the same time. The habit of having pain and pulling teeth is an incomplete process. They come to us with focal infection, say the tonsils or the teeth, and a few other things that may appear on the surface as focal infection. It seems to me in the chronic type of patient it is our duty to be as thorough as we can and dive into the case and do all there is to do. We listen too much to the superficial attacks of these focal infections and do not get down to bed rock and so many cases slip away. There is a way to meet arthritis. We have felt typhoid therapy and some other different ways of treating patients as good methods, but apparently those things are almost useless unless you understand your case. Arthritis cases are the hardest type of cases to understand. If we get into this thing as we should there is a tremendous field for doing a lot of good. These people that have aches and pains today may be in the wheel chair in the future. Nobody sitting in a wheel chair at 60 or 70 with deformities from arthritis thought he would be there because of some little ache and pain 20 years ago. I feel something as a missionary continually promoting this idea of treating and taking an interest in these cases and doing something for them. It is surprising what you can do if you try.

Dr. E. Goldfain, Oklahoma City: Toxic absorption is like clearing up of any source of septic absorption and will help the ability of the individual to stay on top in the rheumatic condition we have. As to individual diagnosis, I did not go into that angle in my paper. The individual diagnosis of atrophic or rheumatic arthritis differs from hypertrophic arthritis or osteoarthritis in that atrophic arthritis usually is prior to or in the early thirties. It may begin in the first few years of life. Some begin with the child. On the other hand hyperthrophic arthritis begins in patients of 40 years or more and is more common in women than men. The x-ray gives us very definite information in that the atrophic arthritis shows hyperplasia or proliferation of the synovial membrane and periarticular tissue and goes on to the final stage with absorption of the articular cartilage with bony ankylosis. The x-ray in the hypertrophic type shows degeneration of the cartilage. There is no proliferation nor swelling and pain. There is more evidence of systemic toxemia in the hypertrophic arthritis than there is in the atrophic arthritis. A very interesting test is being used, the sedimentation test. Sedimentation tests will show accurately the presence of active rigidity of sedimentation. In the hypertrophic arthritis the sedimentation test runs practically normal. The Schilling test is of value because in the atrophic arthritis it veers to the left 10% or more while in hypertrophic arthritis it is practically within normal limits. We see quite a bit of anemia in atrophic arthritis, the patient is undernourished, underweight, tall, slender type while in hypertrophic arthritis the patient is well nourished and seldom shows anemia and usually is of stocky build. Dietary condition and correction of focal infection is the line used. It is a matter of readjusting activities of the individual,

getting him used to the idea of the chronic condition he is going to have the rest of his life, removing the focal infection, building up his general system and reducing strain on the joints. In hypertrophic arthritis one thing will be of value, always tell the patient that it is an unusual thing that ankylosis does not take place. Artrophic arthritis cases are those who are going to be crippled and bed fast if you do not watch out. Dr. McBride has the proper attitude towards the problem. From the standpoint of the orthopedic man he has the same feeling about the matter if he has to deal with therapy. However, the orthopedic man has an important function in treating these cases by subluxation and restoring to them mechanical mobility quite often.

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ECTOPIC PREGNANCY*

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Any implantation of the ovum outside the uterine cavity is known as an extrauterine or ectopic pregnancy. This may occur anywhere along the fallopian tube, from the isthmus to the fimbria, or in the part of the tube which passes through the uterine wall—the interstitial tube. Ectopic pregnancy may also occur in the ovary, and it has been asserted that the original site of implantation may be in the peritoneum, but this is not universally believed.

While the diagnosis of ectopic pregnancy presenting the classical symptoms may have its difficulties, "those cases that show atypical signs and symptoms are very confusing and the diagnosis is not made until the abdomen is opened. The classification of these cases into typical and atypical should be based on the pathology present instead of the symptoms."

*Read before the Section on Surgery, annual meeting, Oklahoma State Medical Association, Tulsa, May, 1937.

"The ovum can be implanted anywhere between the follicle and the uterus, giving rise to the two primary types—tubal and ovarian. Most authors agree that other types, such as broad ligament and abdominal pregnancies, are the result of abortion of the tubal and ovarian pregnancies because they feel that it is doubtful if the ovum can be implanted upon the peritoneum or the ligament."

"Tubal pregnancy is by for the most common type and it can be unilateral, bilateral, single or multiple unilateral and bilateral, or both."

"Next in order of frequency is the so-called ovarian pregnancy and there is some question as to whether or not this is primary, or the result of extension from the tube."

"Broad ligament and abdominal pregnancies are now generally accepted as secondary types, the result of rupture or

incomplete abortion or an extension of tubal pregnancy into the ligament or peritoneal cavity."

"Ectopic pregnancy may terminate in one of several ways: Abortion, either complete or incomplete; rupture; absorption, disintegration or calcification of the ovum; removal by surgical intervention; or full time development. Abortion, most authors agree, is the most common termination and occurs in about 75 per cent of the cases, complete abortion being less frequent than incomplete. Rupture occurs next in order of frequency. The termination of tubal pregnancies depends upon the location of the implantation in the tube. Thus, if the ovum is implanted in the isthmus, the size of the passage does not permit much distension, and early rupture is the rule. By complete abortion is meant the expulsion of the ovum, membrane and contents into the peritoneal cavity. The resulting hemorrhage is slight. In the incomplete type there is only a partial loosening of the ovum from the tubal wall and the hemorrhage may be severe or moderate, depending upon the location of the vessels. Rupture occurs generally at the site of the placenta and is thought to be due to burrowing of the chorionic villi and distension. It enters either the peritoneal cavity or the folds of the broad ligament and generally occurs about the eighth week. If the ovum is not removed by surgery or is not absorbed or degenerating in one form or another, after rupture or incomplete abortion, and there is still enough placental tissue intact with its attachment to receive sufficient blood supply, it may develop further and even reach full term."

"Ectopic pregnancy may occur under any of the following conditions: In women who have borne no children; sandwiched in between two normal pregnancies; in women who have had repeated pregnancies; in women who have been exposed to possible pregnancies over a period of years, and followed by a normal pregnancy; or on the opposite side after a previous pregnancy."

"Etopic pregnancy is seldom diagnosed before rupture because the physician is not consulted until the accident happens. However, if the patient gives a history of early subjective and objective symptoms of pregnancy and a mass is found in either tube-ovarian region, it will be safe to assume that it is an ectopic pregnancy. After the rupture the diagnosis is fairly easy and can be made without much hesitancy."

Should a woman of child-bearing age appear for examination with the history of past irregular menstrual life, a missed period with or without previous pregnancies, and with or without a history of previous pelvic conditions, venereal or otherwise; complaining of sudden, intense pain in the affected side, accompanied by nausea, and vomiting; uterine hemorrhage, spotting or moderate in type, and fainting; and examination reveals tenderness, rigidity, increased size of uterus, with a small, soft mass in either tube-ovarian region, with a slight temperature, a moderate leuocytosis, increased polymorph count and a mild secondary enemia, one can feel reasonably certain that a diagnosis of ectopic pregnancy is correct.

"In considering the differential diagnosis the most common conditions to be confused with ectopic gestation are abortion, acute salpingitis and acute appendicitis."

"Acute salpingitis may be confused with tubal abortion but is quite often bilateral while an ectopic pregnancy is unilateral. The blood picture will be of some assistance and the menstrual history should be carefully studied."

In abortion the pain is more or less rhythmical similar to labor pains and the hemorrhage is more or less profuse with clots.

Diagnostic considerations in distinguishing between appendicitis and extrauterine pregnancy must not cause delay in a necessary operation.

Treatment:—Operation is the only possible way of treatment, once the diagnosis has been made. Even if the symptoms point to a tubal abortion, it is much safer to open the abdomen immediately.

In cases with slight bleeding it is the

custom to remove the affected tube and retain the ovary when possible, and it is most important to inspect the other tube. Twin tubal pregnancy is not unduly rare, and three cases of triplets have been recorded.

In cases of ruptured tubal pregnancy with severe bleeding immediate operation is, of course, indicated, and whenever possible a blood transfusion should be given during the operation. This has a most dramatic effect, and undoubtedly saved the lives of three of my own cases. Before the abdomen is opened two intestinal clamps are placed ready. The abdomen is opened and the hand is at once plunged down into the pelvis, and the mass of clot and tube grasped and clamped on both sides, so as to stop the bleeding. This should always be done, as furious bleeding often begins as soon as the abdomen is opened, and it is useless to try and mop it away before the clamps are applied. As it is not possible to see if the bowel is adherent to the sac, we use these light bowel clamps, which do no injury to any adherent gut which may be included in their grasp. The blood and clot are rapidly removed, for which we prefer a suction apparatus, and then the mass between the clamps is inspected and the tube and pregnancy removed. Rapidity of operation is essential, and immediate steps must be taken to combat shock. A saline infusion is given as required.

Finally a smear should be examined for gonorrhea and a Wassermann test done during convalescence.

Appendectomy should not be performed in the presence of extrauterine gestation.

Results:—Cases recognized early and operated upon immediately should recover, in most instances. In our series of fifteen cases we had one fatality.

* * *

DISCUSSION

Dr. Atchley: It seems to me that the more we study about tubal pregnancies in the way of diagnosis, the less we really know. The diagnosis of tubal pregnancy is as easy a one it seems to me as any in the world if the history fits it, but my experience is about one in ten where the history fits the patient's symptoms. It may read like a story book and you won't have any trouble, but they are very difficult to diagnose where the history is of no assistance. I look back over the years and see how many times I have been fooled and wonder why in the world I was so dumb, but there is one thing I want to bring out, and that is the fact that these women have periods of pain. They have lots of pain in the abdomen, get better for four or five days in this particular, and then they will have some more. They may not have any visible pallor. Their hemoglobin will go down, where you can follow them up with blood analysis. But what I want to stress is that these women have periodic attacks of pain in the abdomen. Of course it is more or less likely when they are having a little hemorrhage. Then they begin to feel better. You think maybe that is a leaky tube. Of course if there is a massive hemorrhage, it is written on the abdomen; then the diagnosis is easy. The ability to diagnose tubal pregnancy is certainly the mark of a good gynecologist.

Dr. Long: I will express my humble attitude—that is exactly the way I feel about it—I am very humble in the presence of this because it is very difficult, but once is struck with the multiplicity of aids that can be employed in attempting to confirm diagnosis. Of course the history is fundamental; that is the first aid to diagnosis. The Freidmann test in tubal abortions are negative in about two-thirds of the cases, so a positive test is of some benefit and a negative one doesn't help a bit. Dr. Vornercran originated the idea of needling the abdomen, and I have seen him take a large needle and go directly into the adnexal area of a patient in Trendelenberg position. It looks a little blind to me, but that is the scheme he employs. A man by the name of Betterdol in Stockholm attempted to confirm diagnosis of intraperitoneal blood by a similar maneuver, but he did a posterior colpotomy through the vagina to demonstrate blood. Another feature of additional information is the curetted specimen.

Dr. Crawford spoke about leucocytosis being one of the signs. That is not so much in ectopic pregnancy, because we depend upon the history, and all of us have seen the leucocyte count very high and then very low, because the leucocyte count is high in the initial stage and then becomes low. At the same time, diagnosis of retroperitoneal hemorrhage and rebound tenderness is extremely valuable. The blood count is of very little value.

In conclusion, I would like to tell you about this—I think it is perfectly all right —I would like to tell you about a doctor's wife who proves my humble attitude. She came to my office one day when the doctor was out of town. She said, "I have a ruptured ectopic pregnancy. My husband laughed at me and he has gone off to another State." Her symptoms were suspicious enough that she was hospitalized, and after five days I finally agreed with her and operated on her, and she did have an ectopic pregnancy with lots of blood in the peritoneal cavity. So I am sure Dr. Crawford will agree that diagnosis is a little more difficult than he suggests.

Dr. Kernodle: The presence of shoulder strap pain in ectopic pregnancy gives a sign that occurs in a certain percentage of cases, and I have seen it twice in quite a definite manner. The first patient I saw with shoulder strap pain was a young woman, unmarried, that had a little menstrual delay and had a cold at the time and had a cough. When I first saw her she was complaining of practically no abdominal pain but a definite shoulder strap pain, and at first I thought it might be diaphragmatic pleurisy, but upon further examination it was determined that she had an ectopic pregnancy and it was proved at the time of operation. In looking the matter up, the occurrence of a shoulder strap pain in ectopic pregnancy is quite a definite sign that is often overlooked. I think it is of some value in assisting in diagnosis, as very few other conditions in the lower pelvis will cause this pain. The exact mechanism of the cause of this pain is not easily understood, but it is some disturbance referable to the splanchnic nervous system.

Dr. Longmire, Sapulpa: This is an interesting subject to me. In making the diagnosis in the smaller communities where the laboratory facilities are not so good, we have to rely on our ingenuity at times, and I have noticed over a number of years the symptom of shock or fainting spells. The patient complains of severe pain in the affected side, distention of lower abdomen, presence of a mass, and then acute anemia. These are the symptoms that I rely on a great deal. One may find a double ectopic pregnancy. I operated a case three or four years ago in which I had made a diagnosis of ruptured ectopic pregnancy, and in taking care of it I noticed a cystic ovary on the opposite side, which proved to be an unruptured ectopic pregnancy. So in this case there was a double ectopic pregnancy, ruptured on one side and unruptured on the other. I removed the sac and found a foetus.

Dr. Stout: I don't believe I can say very much that hasn't already been said about tubal pregnancies. It gets me in lots of trouble. The doctor spoke of differentiating from acute salpingitis and that is difficult, but also we have to differentiate from chronic salpingitis. We have cases that go over a period two to three weeks, then flow a little and then have a mass in one side and you can't feel anything in the other side. In those cases I have lots of trouble differentiating whether it is a tubal pregnancy or chronic salpingitis. I enjoyed the paper. It was very interesting, and on a subject that we must keep rehearsing in our minds; if we don't we will overlook our differential diagnosis.

Dr. Crawford: I will admit it isn't easy to differentiate ectopic pregnancy; sometimes it is pretty hard. But when you have the symptoms, feel the mass, and have spotting and menstrual disturbance, it seems we shouldn't have much trouble making the diagnosis, but I am afraid most of mine have been made after they got to the operating room. I had one interesting case where a patient had an ectopic pregnancy on one side, and two years later on the other side. I appreciate the discussion.

Appendicitis in Children*

MAURICE J. SEARLE, M.D.
TULSA

Appendicitis in children remains the most frequent cause of abdominal surgery. A recent article in the Edinburg Medical Journal presents the following percentage from a large group of cases:

Appendicitis 41.8.

Intussusception 37.6.

Intestinal obstruction from various causes 7.7.

Primary peritonitis 7.7.

(streptococcic and pneumococcic).

In this paper I shall confine my remarks largely to the pediatric aspect of this condition, stressing the distinct differences between the surgery of adults and that of infants and children.

The child is an organism in an unstable state of rapid evolution with reactions, growth factors, proportions, physiologic requirements, psychology, and pathologic processes differing greatly from the adult who has reached the state of physiologic stability. In other words he is not an adult in miniature.

When confronted with the necessity of making a differential diagnosis of an apparent acute abdomen in a child, the first point which one naturally considers is the history. Typically, the parent tells that the child has had attacks of recurrent abdominal pain at intervals during the past, either daily or longer. The pain may be sharp and stabbing, or burning, or a dull ache. There is associated nausea and perhaps vomiting. The child has had a poor appetite and perhaps has been constipated. The services of a physician are now sought because the pain has become more acute and he may have developed a very slight fever.

The examination of the child is now in order and I know of no situation which taxes the skill, tact and patience of the diagnostician as this one. The child is peevish and sick—he hurts—he is suspicious of everyone, his parents, nurses and particularly the doctor. The first step is an attempt to allay his fears and gain his confidence. His expression is apprehensive if any move is made to touch his abdomen so *that* is postponed till the last, with examination beginning with his head. While listening to the history, a surreptitious inspection of the abdomen can be made, noting particularly whether he is lying quietly to protect a tender inflamed organ, whether his right knee is elevated, whether or not his breathing is of the abdominal type. The ears are then examined followed by the throat. Brenneman of Chicago makes the unqualified statement that 50% of appendiceal inflammations are secondary to infections in the throat and Evans of University of Wisconsin reported eight times as many cases of appendicitis during influenza epidemics as in non-epidemic times.

This is not startling to the pediatrician who constantly examines children's throats and is cognizant of the fact that the lymphoid tissue of the appendix so closely resembles that of the tonsils that the former has often been spoken of as the abdominal tonsil. He therefore feels confident that throat infections have a definite etiologic relationship to appendicitis.

The chest is now examined, and I know it is not necessary for me to emphasize to this group the necessity of absolutely excluding a pneumonia, perhaps a small central involvement, or a pleurisy, particularly a diaphragmatic one. If the physical signs are inconclusive an X-ray proves valuable, and a blood count usually will show a much greater increase in the white cells—25,000 or maybe 35,000 in the case of pneumonia. Cautiously and furtively the abdomen is now approached and, making sure the examining hand is well warmed, gentle palpation is begun on

*Read before the Surgical Section, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1937.

the left side at first as that is the side less frequently involved.

Between screams probably, one ascertains the presence of muscle spasm or tumor masses. The right upper quadrant is then palpated and finally the right lower quadrant, all being done gently at first. Deep palpation now is tried noting points of maximum tenderness, together with evidence of rebound tenderness. This information is best noted by watching the child's face, which betrays the location of a tender spot by a painful expression, a wince or perhaps by a lusty scream. Do not ask: "Does it hurt here?" The answer is always in the affirmative. Percussion and ausculation may then be carried out, determining the degree of distension, the presence of dullness and the evidence of peristalsis. Rectal examination is not indicated except in rare instances; it is a painful procedure and the excitement it causes overshadows any information that may be obtained. At this point it is well to emphasize the fact that the physical signs of appendicitis in a child may not localize themselves in the right lower quadrant; the juvenile appendix seems to migrate more than the adult one; also, in the child the omentum is at a much higher level and the appendix gets very little protection from it in walling off and localizing.

The leukocyte count is usually between 15,000 and 20,000, but do not depend upon it to determine the diagnosis. A low count is of bad prognostic significance. The differential count, the Cooke-Ponder index, the sedimentation rate, serve the purpose of strengthening the chain of evidence but even though they are apparently normal do not be misled if the clinical signs are positive.

A number of conditions suggest themselves which must be differentiated and eliminated before a diagnosis of appendicitis is made. The first thought is: even though the signs and symptoms are abdominal is the pathology in the abdomen?

Frequently measles, scarlet fever, tonsilitis, basal and diaphragmatic pleurisy and pneumonia cause abdominal pains and symptoms which are most puzzling. Allergy may evidence itself in this manner, but the determination of the leukopenic index if some protein is suspected is proof positive in excluding this cause. The same is true of what might be called "essential acidosis" seen so very frequently in the child who has indulged in excessive fats in his diet, but who responds quickly to glucose therapy.

Food poisoning is usually recognized by the vomiting, diarrhea, lack of distension and dehydration.

Tuberculous peritonitis usually is not so acute, and is most often a secondary condition.

Pyelitis can be diagnosed by a urinalysis, but remember that appendicitis can occur concomitant with it.

Renal colic, cholecystitis, gall-stones, pancreatitis, perforated duodenal ulcer, are so rare in childhood as to be negligible.

I do not know how to differentiate a Meckle's diverticulitis, but it makes no difference as the treatment is identical.

Tetany and spasmophilia due to impaired calcium metabolism may simulate an acute abdomen, but the associated symptoms and signs serve to identify them. Typhoid fever is not difficult, and here the blood picture with the definite leukopenia is helpful.

Mesenteric lymphadenitis displays at times such identical symptoms that a diagnostic error is almost excusable. An X-ray of the abdomen may show the enlarged glands. It is best to err on the side of safety in a puzzling case and open the abdomen. Ovarian torsions are difficult to differentiate, but the treatment is the same as appendicitis at any rate.

Mesenteric thrombosis, intussusception, volvulus, etc., give a somewhat similar picture but there are several striking differences; the pain is colicky in character—it comes and goes—the tenderness is usually generalized, a mass can often be felt, and the child gives the typical picture of acute shock, with a sub-normal temperature and a weak very rapid pulse.

When these conditions have all been excluded and the diagnosis of appendicitis has been made, the question of treatment arises. Cases seen in the first 24 to 48 hours should be treated by immediate ap-

pendectomy. If this is not done, any one of three things occur:

1. It is not uncommon for the inflammation to subside and the child recover.
2. A generalized spreading peritonitis ensues which demands immediate surgery.
3. A well defined, circumscribed mass develops, due to the complete walling off of the inflamed organ. This positively should be treated expectantly, with the use of sedatives, gastric lavage, alkalinizing therapy, and the mass probably will disappear; however, this type should be operated later, in a month or six weeks when it is quiescent.

A striking difference exists between the adult and the child as regards peritonitis; in the adult it almost always follows appendicitis; this is not true in young children. The condition is called Primary Peritonitis because it arises from a cause which is extra-abdominal, but it is usually secondary to a throat infection; measles, scarlet fever, general sepsis, etc. It is due almost always to either the pneumococcus or the streptococcus.

The differentiation from appendicitis is of great importance because the treatment is different. From the onset the child with this type of peritonitis has more pain, more tenderness, more rigidity, more vomiting, has the typical Hippocratic expression, and is more prostrated. When confronted with this symptom complex there has again come into use the practice of abdominal puncture. A small lumbar puncture needle is inserted through the abdominal wall till it punctures the parietal peritoneum; suction is made with a syringe and although one obtains only a part of a drop of fluid, if this shows streptococci or pneumococci it is of tremendous significance in the treatment. The procedure is pre-eminently safe.

Although I admit it is not unanimous, the preponderance of opinion now is, that this type of case should not be operated, but rather it should receive pneumococcic serum if the corresponding type is available, or in the case of a streptococcic infection it is reasonable to suppose that it would probably benefit by specific sera of that type, or even from such a drug as Sulphanilimid.

The operative technique for appendicitis and peritonitis, I shall not discuss, leaving that to the surgeons; however, the pediatrician should be of help in the pre- and post-operative treatment.

The child should be in optimum condition for operation—dehydration is combatted by subcutaneous or intravenous solutions of salt, glucose or Hartman's solution; with pernicious vomiting a nasal tube should be used with continuous gastric lavage; sedation is requisite.

As regards anesthesia, such drugs as Avertin, the Barbiturates, and cyclopropane are definitely not contra-indicated, although ether remains the one of choice because of its greater margin of safety.

Post-operatively the child must be handled carefully, especially as regards chilling; fluids are administered to prevent dehydration and to maintain the normal chemical balance; gastric lavage is used to control distension; sedatives are given as required; the food used depends upon the age of the child.

The tissues of children are very delicate, the operative fields are small, sharp dissection is necessary and in no type of surgery is more skill required. Fortunately the children are responsive to careful surgery, their reparitive power is excellent, and their post-operative period is remarkably short.

The surgeon should constantly keep in his mind the conditions peculiar to infancy and childhood, the necessity of conservation of body heat, adequate food and fluid supply, skill and delicacy in handling tissues, hemostasis, anaesthesia, and also the value of close cooperation between himself and the pediatrician.

Not only are the differences physical but they are also mental, and it behooves us all to remember the effect of illness, therapeutic procedures, and hospitalization on the emotional development of the child, knowing that many psychological maladjustments of adult life originate in childhood.

DISCUSSION

Dr. John Powers Wolff, Oklahoma City: Dr. Searle mentioned one thing in his paper that presents a problem in the diagnosis of appendicitis, that is, mesenteric lymphadenitis. The diagnosis is difficult, but the general concensus of opinion is that other lymphoid tissue will be concurrently inflamed. The lymphoid tissue of the throat will usually be inflamed.

A point about the diagnosis of this condition. The onset is much more acute and the temperature will usually be higher; running about 102 or 103 degrees. In appendicitis the temperature is not so high. The safest treatment is immediate appendectomy followed at a later date by eradication of infected lymphoid tissue in the throat. This seems to prevent future attacks. There seems to be no general agreement as to the etiological organisms in these cases.

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TUMORS OF THE JAWS*

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The title of this paper is quite inclusive and it is intentionally made so, not because I feel that I can adequately present such a subject—as no doubt you will all appreciate before I have completed my talk—but rather to emphasize the following points.

1. This subject is a common condition and one which in various fashions comes to the attention of each and everyone of us, the E.N.T. specialist, the Dermatologist, the Syphilologist, the Internist, the Pediatrician, the Orthopedist, the X-rayist, whether he be diagnostician or therapeutist, the Neuro-Surgeon, the General Surgeon and the Pathologist.

2. Any study of this subject shows the poverty of knowledge in the minds of most doctors and their inclination to send all such cases to a dentist.

3. That a large percentage of people suffering with tumors of the jaws are inadequately, if not wrongly, treated.

Today I want to present to you an outline classification of tumors of the jaws, briefly indicating a sensible method of management of each type. I would also like to report briefly two cases which illustrate treatment and the results to be expected from such treatment.

*Read before the Section on Surgery, annual meeting, Oklahoma State Medical Association, Tulsa, May, 1937.

CLASSIFICATION

I. BENIGN

A. Fissural Cysts—"Certain cysts form from enclosed and retained epithelial rests at the place of fusion of the various processes from which the jaws are formed during embryonic development. These are called fissural cysts." There are two common types of these.

1. *Facial—Cleft Cysts.* These are located at the site of union of the premaxilla and maxilla. They extend into the vestibule of the nose and partly into the vestibule of the mouth. Such cysts have a tendency to be upon the bone rather than in the bone. Clinically, the patient shows a swelling in the anterior part of the nostril with swelling and fullness of the upper lip.

X-Ray examination—negative.

Treatment—surgical extirpation.

2. *Incisive Canal Cysts*—In dogs and rabbits there is a communication between the nasal and oral cavities called the Nasalpalatine duct.

In the human fetus this is also present, but as a rule disappears. Any interference in the development may cause either

a dimpling on either oral or nasal side, a blind sac, or even a communication.

Clinical Picture: The patient may have repeated swellings in the region of the palatine papilla with recession. If a retention cyst develops, he will have a permanent swelling; this is usually manifest on the oral side, in midline between the teeth but is not connected with the teeth.

Since they are lined with epithelium, once they cause any trouble they should be removed.

B. *Exostosis*: Of either upper or lower jaw are similar to exostoses elsewhere in the body.

Common location—symphysis of lower jaw.

They may be observed in people wearing artificial dentures. In these they occur along the alveolar ridges. The exostis is a true outgrowth of bone having a cancellous and a cortex portion. On top of the cortex is usually a layer of cartilage and not infrequently on top of this development a bursa.

These tumors are never the seat of malignant disease.

Clinical Picture: A firm, hard, bony outgrowth. Occasionally those having bursal develop an infective bursitis, then they become quite painful.

X-Ray—positive diagnosis.

Treatment: If causing no pain, no particular interference of function, or any abnormal deformity, leave alone. If, for any of these reasons, removal is desired, it should be done by chiseling off the exostosis.

C. *Osteoma*: A localized area of new bone formed upon existing bone, usually arising at the site of an ossifying periostitis.

They are benign and do not become malignant.

X-Ray—Positive diagnosis.

Treatment: Ordinarily left alone. May be removed for cosmetic purposes.

D. *Chondroma*: Wherever we have bone we may have cartilage and wherever there is cartilage there may appear a chondroma, a myxochondroma or a chondro-sarcoma.

When one of these tumors is encountered by biopsy, the decision to remove must be decided upon the fact as to whether it can be completely removed, because it is safer to leave alone than to *partially* remove. Bloodgood states that in removing a chondroma, if a piece of tissue is left, there is always a recurrent tumor and ultimately the chondroma becomes a chondro-sarcoma.

E. *Epulis*—This is a bad term as it means gum. A better term would be Peripheral Giant Cell Tumor. It arises from the periosteum.

A common type of tumor occurring in both children and adults.

It is considered a benign type of tumor. If the predominating tissues are vascular they may be considered angiomatous; if connective tissue, may be considered as a fibroma.

Trauma is considered an etiological factor.

Shedding of decidious teeth another.

Clinically: There appears in the mouth a painless swelling, more often on the external than on the internal surface of both the maxilla and mandible.

May be pedunculated, but usually has a wide base. Fairly well circumscribed. Firm consistency. Bluish purple in color. May arise about a tooth or push the teeth apart.

Treatment: Complete excision that includes part of the periosteum. A frozen or quick section is made to exclude malignant growth and also to ascertain complete removal, then thorough cauterization of the area. It is best done with an electric cautery.

II. INTERMEDIATE GROUP
(BENIGN TO MALIGNANT)

1. Fibroma.
2. Myxoma.
3. Fibro-myxoma.
4. Fibro-myxosarcoma.
5. Fibro-sarcoma.
6. Giant cell tumor (central).
7. Dental Root Cyst.
8. Dentigerous Cysts.
9. Adamantine Carcinoma. (Adamantinoma)

The first five, that is the fibroma, myxoma, fibro-myxoma, fibro-myxosarcoma, and the fibro-sarcoma, are all connective tissue type of tumors. This group of tumors occurs more frequently on the upper and lower jaws than in any other location.

They may grow within the antrum. They may arise centrally within the lower jaw. Early, they have a distinct capsule. They destroy bone by pressure.

This type of tumor was the kind removed from President Cleveland.

X-rays of this entire group of nine tumors show no positive points of differentiation.

They are not radio-sensitive and, therefore, should not be radiated.

TREATMENT

A. If the bone shell is intact, the covering tissues are opened up under local anaesthetic and a biopsy done; the type of tumor diagnosed; a portion of the shell is removed; the entire inclosed area then curretted out with a cautery. Mutilating excision is not necessary.

B. Should the bone shell have been destroyed by growth, the covering tissues are opened up by the use of a cautery; biopsy done; then complete removal of the tumor with the immediate adjacent tissue.

6 CENTRAL GIANT CELL TUMOR

Usually thought of as benign. The nature of these tumors is controversial. Some believe them to be neoplastic. Others feel they are an expression of "reactive resorption" or "resorptive new formations."

In our discussion we are considering the localized type of tumor occurring in the normal skeleton and appearing singly, thereby differentiating from the "giant cell" tumors occurring in osteitis fibrosis due to hyper-parathyroidism which, by the way, quite often involves the jaws.

Points of differential diagnosis should be called to attention.

1. In Hyperparathyroidism, the tumor may be either periosteal or central. It tends to be multiple in jaws as elsewhere in the body.

2. X-rays of other bones shows involvement.

3. Rheumatoid pains.

4. Blood calcium increased.

This type of tumor occurs in both jaws. It favors the parts of cartilaginous origin as the condylar part of ramus, symphysis of mandible, maxilla in region of canine fossa and ethmoid region.

Treatment: The lines of approach are the same as described for the previous group. When diagnosed, the area should be thoroughly cleaned out of all involved tissue with currette or cautery and then the cavity should be treated with a sclerosing substance as Carnoys solution with ferric chloride or a solution of zinc chloride.

No extensive mutilating surgery is necessary.

7. DENTAL ROOT CYSTS

These are probably chronic dental root abscesses, because the pathological section show not only cystic areas but also evidence of old inflammation.

X-ray shows a defect in the bone.

When tooth is extracted, the cyst wall as a rule comes out also.

Treatment: Extraction of tooth; biopsy of tissue to rule out possible early malignancy. In those cases where all the cyst wall does not come out, after biopsy and quick section report, thorough curretting out of involved tissue.

8. DENTIGEROUS CYSTS

These are central bone tumors arising about a tooth root or non-erupted tooth.

Clinical Picture: Nothing definitely characteristic that would be of differential value. First sign is a swelling of the jaw.

Pathology: Within the bone shell is a connective tissue wall or lining which can be stripped from the bone shell; within this is a cavity containing clear or cloudy mucous-like fluid.

X-ray shows central cavity with bone destruction about a tooth or non-erupted tooth; this is then not diagnostic but suggestive.

Treatment: The plan of approach is the same as with the rest of the group.

1. If proven a dentigerous cyst, simple evacuation and cauterization of the cavity is sufficient.

2. Should the section show adamantine tissue cells, wider excision and cauterization.

PROPHYLAXIS

1. No tooth should be extracted or swelling of the jaw incised without an x-ray picture ruling out a central cavity.

2. No operative attack on these conditions unless prepared for pathological examination of tissue, because these are quite often early adamantinomas.

9. ADAMANTINE CARCINOMA

Adamantinoma is a term commonly used in speaking of this class of tumors. This is a bad term because it is misleading. One expects that there is tooth enamel in these tumors which is not true. Adamantine carcinoma is a better term because it emphasizes that the tumor is composed of enamel organ epithelium.

Secondly, this type of tumor may be derived from oral epithelium which has become misplaced in bone tissue.

It is a malignant tumor; rarely metastasizes. There is marked tendency to spread to the brain by direct extension.

Treatment: When diagnosed it must be removed at initial operation if a cure is to be expected. The small localized growths respond to excision and cauterization of the area. Larger areas demand excision of portions of the jaw and should be followed by radiation.

III. MALIGNANT GROUP

SARCOMA AND CARCINOMA

A. Sarcoma may divide into periosteal and central sarcoma.

Periosteal may develop in either jaw. If seen early, local removal; late wide excision is the only hope.

CENTRAL

Lower jaw—rare.

Upper jaw—frequently seen.

Treatment is not very successful but should have thorough cleaning out of antrum followed by radiation.

B. *Carcinoma*: Primary carcinoma of the bony structures of the jaws does not exist, but carcinoma of either jaw is not infrequently found.

It may arise from the oral mucous membrane and invade the jaw by extension along a tooth root. It may be of the admantine type arising from misplaced epithelial rests. It may arise by malignant degeneration of the lining of any of the benign cysts I have enumerated. It may arise from the mucous membrane lining any of the sinuses. It may arise from the orbit and invade the jaw by extension. It may be a secondary metastasis from a malignant growth elsewhere in the body.

Diagnosis: The x-ray will be suspicious in some instances by having associate bone destruction, but actual diagnosis depends upon a pathological section and study.

Treatment: First, I want to make the statement that malignant tumors of either jaw are curable. The percentage of cases will depend upon the following factors:

1. Early diagnosis.
2. Adequate preoperative study and preparation.
3. Complete eradication of the involved tissue.

The diagnosis, as I said, must be made by pathological examination of any suspicious tissue, but the point I wish to stress is to have the tumor tissue about the jaws examined.

Once the diagnosis is made, consideration of treatment is in order. Naturally, if there is extensive bony destruction and massive soft part invasion palliative treatment is the procedure. But when found locally or not too widespread, then surgical removal with electric cautery is the procedure of choice. All surrounding tissue should be thoroughly coagulated with the cautery. Post-operative radiation should be considered if there has been any sign of lymphatic involvement. Wide excision of neighboring lymph tissue is being done less frequently. In using radiation, one must keep in mind that radium quite often gives rise to radium necrosis.

I wish to briefly report two cases which illustrate the results to be expected.

1. W. C.—Eleven year-old white male, brought to the hospital because of swelling and fullness of left upper lip and upper jaw. Swelling had been first noticed three months before and had grown progressively since.

Physical examination of local condition: there is a distinct bulging of the left upper jaw, causing the upper lip and left nostril to be pushed forward. When the mouth is opened, there is visible a swelling beginning at the gum margin and extending upward. This is on both sides of the teeth. When palpated it is hard and firm, but not tender. X-rays were made and showed the mass to be two inches in diameter. A biopsy was done and report of the tissue showed the tumor to be composed of dense fibrous tissue in which were scattered giant cells. Diagnosis was epulis.

Although tissue reported was benign due to extent, wide excision was necessary. This was done and the wound healed cleanly.

Follow-up observation at three months and nine months shows patient in good health and with no recurrence.

2. The second case is shown for the purpose of illustrating what happens in the late cases.

E. K., fifteen year-old white female had a tumor of the right eyelid removed three different times before reporting to the hospital. When first seen she had a tumor mass widely involving the right orbit and antrum. Palliative treatment was all that could be considered. A ligation of external carotid was done and patient lived some ten months before expiring in a pronounced state of cachexia.

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DISCUSSION

Dr. A. Ray Wiley: This is a very excellent outline you have given us. It is something that we can all put down and keep as a reference, for it is an excellent outline. I have listened rather closely; I don't remember Dr. Burton mentioning the fact that some of the tumors of the jaw are metastatic, and may lead to considerable confusion if considered a primary lesion when it is metastatic. We recently had such a case out at Morningside Hospital. In other words, very careful search early did not reveal the source, and yet we felt we were dealing with a metastatic sarcoma. Later the primary lesion was found. One other thing that the Doctor emphasized here, and I am glad to see him do it, too many of the cases are referred directly to a roentgenologist for treatment before proper diagnosis has been made, and the tumor is treated too long; until it is too late for the surgeon to do what good he might have done earlier. I have seen that happen and I know others have seen it happen. While I have no quarrel with the roentgenologists, there is a proper place for this treatment. There is no use to treat some of the tumors that we have, particularly the class that are not radiosensitive. I enjoyed this paper very much.

Dr. Reichman: I have watched some of Dr. Burtons' cases and have worked with him some at the University Hospital. I enjoyed his paper very much and his emphasis on various points I most heartily concur in. There is one point that he emphasizes that I would like to say just one word about if I may, and that is the use of biopsy about the mouth. Of course it is valuable and I do not wish to detract from that value at all, but we should have in mind one point as far as the membranes of the mouth are concerned. Where we have acute or chronic inflammation, the basement membranes of epithelium will be broken down and many times the pathologist will give you a report of malignancy, whereas it is from the acute inflammation or sometimes from the chronic inflammation. I found that to be true accidentally by taking a section of an acutely inflamed gingival margin for the purpose of trying to demonstrate the presence of Vincent's organism. With that one exception, I heartily concur in the main points which he made regarding biopsies.

Dr. Kernodle, Oklahoma City: I would like to say that adamantine carcinoma is one of the most interesting types of tumor that we come in contact with. It arises from the adamantine cells in the development of the teeth. While on my service at the hospital, a colored woman came in with a recurrent tumor. It was as large as a grapefruit, occupying her entire low-

er jaw, pushing her tongue up against the roof of her mouth, and causing her dysphagia and dyspnoea. We removed that tumor and peeled it out and found that when we got through, the tumor extended to the angle of the jaw on either side. At the end of the operation we had nothing in the floor of the mouth. For ten days we kept that woman's tongue hanging out with a string on it until we had enough fibrous tissue formed in the mouth to hold her tongue in proper position. Unfortunately, she died six months later of pulmonary tuberculosis. She had gone to a doctor five years ago for tumor of the jaw and he had removed it. She went to another doctor two years later and he removed it again. She went to Mayo's Clinic and the tumor was again removed, but at that time it was probably so extensive that it could not be wholly removed and it recurred. These tumors that are adequately removed at the beginning are cured, but they have to be removed in their entirety. Their early removal is recommended because they are, as Doctor Burton said, on the borderline of malignancy.

Dr. Burton: I appreciate the discussion, especially the point about metastatic tumors. This emphasizes further the advisability of doing biopsies. I was particularly pleased to have Dr. Reichman's discussion, because Dr. Reichman is doing quite a lot of work about the mouth, and he brings up a point that I think is well taken, that of biopsy. We must get the idea of cooperation; the pathologist and roentgenologist and surgeon must sit down together and talk over these things. It was my pleasure last Fall to attend several conferences where they were dealing with malignancy about the face and head. The patient was brought in, the record was discussed and it was decided what was the most advisable form of treatment, whether the patient was amenable to surgery with his diagnosis, and whether there should be radiation post or pre-operatively. I think that cooperation is important in all types of tumor. I certainly appreciate the discussion.

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The Treatment of Gonorrhea in the Male*

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CHAPTER X

MINOR COMPLICATIONS—BALANOPOSTHITIS

Because of the irritating effect of the discharge on the glands and foreskin, this annoying complication is seen rather frequently, especially in those of negligent habits. The patient should be impressed with the importance of bathing the parts often with a mild soap and water. The dressing that serves to collect the discharge should be changed frequently and it may be advisable to use some sort of antiseptic dusting powder if there is a tendency toward skin or mucosal exfoliation.

*This is the fifth and last installment of "The Treatment of Gonorrhea in the Male." Previous installments appeared in the May, June, July and August issues of The Journal.

When a rather inflammatory condition is present as manifest by edema and pain, hot permanganate soaks (1:8000) will be found helpful. In individuals who have a redundant foreskin, the added swelling of the prepuce produces a phimosis which if not easily retractable will allow infection beneath to assume serious destructive proportions. This is especially evident when a chancroidal infection is present. Patients with tight prepuces should be warned to be careful in retraction of that structure past the corona especially when difficulty is encountered doing so because of the possibility of producing an irreducible paraphimosis. In such instances irrigation of the sac several times daily should be advised.

Ulcerative lesions beneath an irreducible phimosis should not be treated conservatively for too long a time; surgical steps to improve drainage should be taken as serious destruction of the tissues of the glans and even the urethra may result. The physician in such instances should "dog-ear" the foreskin by means of lateral incisions of sufficient length to allow the prepuce to be retracted so as to obtain adequate exposure of the infected area. This can be done under block anesthesia by injection at the base of the penis. Because of the infection, the high frequency cutting current is the safer method of performing the incision followed by electrocoagulation of the bleeding points. No sutures are taken and the organ is dressed with dry iodoform gauze with the same dressing used thereafter. At a later date when the infection is controlled a plastic circumcision may be performed trimming up the redundant tissue under local infiltration anesthesia.

As regards the urethral infection it is probably better judgment to disregard for the time being. Routine urethral treatment may be resumed when the external tissues have resumed a more normal state. It is also well to keep in mind that any ulceration involving the genitalia should suggest to the physician a syphilitic infection; dark field examinations of the serum from these ulcerations should be persisted in, in order to prove or disprove the presence of this disease. A follow up of a blood Wasserman should be also insisted upon for several months following such a complication. The patient should further be advised, in instances where ulceration has occurred around the urethral meatus that stricture of this region will probably occur and this will require dilitation for an indefinite length of time.

DIFFUSE PERIURETHRITIS WITH CHORDEE

Peri-urethral inflammation with involvement of the corpus spongiosum is a frequent painful complication of the disease. It is present to some degree in practically every patient the first ten days of his infection. When severe it produces a condition termed chordee which is a painful, downward crooking of the organ on erection resultant from the inflammatory fixation of the urethra to the adjacent tissues. To forcibly straighten out such a penis is a therapeutic brutality and should never be done; hot penile soaks is a more rational method of obtaining relief.

PERI-URETHAL ABCESS

This painful complication is rather common, especially in those patients in whom the urethra has been subjected to extreme trauma in the form of strong medication, high pressure irrigations or instrumentation during the acute phase of gonorrhea. Judgment in draining the abscess must be exercised. Preliminary hot packs will soften and localize the infection and not rarely abort the process by inducing spontaneous drainage of the gland by way of the urethra; however surgical drainage usually becomes necessary in most instances. As soon as the condition has been thoroughly localized, under local anesthesia a longitudinal incision is made into the swelling thereby evacuating its contents. This incision must not be carried too deep as the urethra will be entered and a permanent fistula develop. It is probably well to desist from all local treatment during this acute complication for fear of encouraging this latter condition. Fortunately, unless the fistulous opening is extensive, subsequent urethral dilitation will almost always be followed by satisfactory closure.

LYMPHADENITIS AND BUBO

Enlargement of the adjacent inguinal glands is not necessarily a complication of gonorrhea as it is rather a constant find-

ing to some degree in each instance of the disease. Unless secondary infection occurs, usually in the form of the bacillus Ducrey, no fear should be held that they will suppurate; gonococcal lymphadenitis is rarely productive of pus. Lymphangitis manifesting itself as a "whipcord-like" swelling of the superficial lymph vessels along the dorsum of the shaft, occasionally develops. These acute inflammatory conditions demand little more than hot fomentations to the affected region and which usually results in rapid improvement.

* * * *

CHAPTER XI
PROOFS OF CURE

No more perplexing problem confronts the physician treating gonococcal infections than the decision that the patient is completely free from the disease. Despite the common belief held by many of the laity and not a few physicians, gonorrhea can be permanently cured. The recurrence of the disease about which one hears so frequently, occurs usually in those who at all times have slight but definitely demonstrable evidence of infection. In most instances an examination will reveal shreds in the urine or pus in the prostatic secretion. Certainly the probability of cure is further reinforced when indulgence in alcohol or sexual intercourse fails to activate the disease.

Time is the essential factor that proves the cure of gonorrhea. It may be stated that the longer an individual goes without recurrence, the more positive the physician may be that a cure has been obtained. An arbitrary period of approximately three months following cessation of all signs and symptoms of the disease may be considered sufficient in order to assure the individual of his freedom from gonorrhea. Rarely will the infection recur where no positive signs are present after such a period of time. Glandular structures wherein the gonococcus become totally sealed will become spontaneously sterilized in this length of time. However, in the interest of safety to the sexual partner, intercourse without condom should not be allowed for some time after that.

At this point it is well to emphasize the dangers incident to sulfanilamide therapy as it pertains to this aspect of the disease. The addition of this drug as an adjunct in the treatment of gonorrhea, because in many instances it obliterates all the signs and symptoms of the disease quite early, holds an element of danger as regards infectiousness not generally appreciated. In our experience, in only a small percentage of patients for whom the drug is prescribed, will there be followed a rapid complete eradication of the infection within a matter of days. The great majority of individuals who are given this medication will show a relapse of infection sometime within the first three or four weeks. It is true, active discharge is lessened even to the point of clear urine in both glasses, but infection of a sub-clinical degree is doubtless still present as indicated by a recurrence of discharge. In a few, the administration of sulfanilamide seemed not to shorten the course of the disease but actually lengthen the time necessary to obtain a positive cure. The stained smears in such instances will show few, if any, organisms but the gonococcus is still present as manifested by the constant appearance of slight but definite muco-purulent discharge and shreds in the urine. Doubtless, in these, the drug exerts some inhibitory effect on the organism which consequently hinders the development of the maximum immunological response.

In those patients in whom a relapse has occurred, we have found it requires eight to ten days following cessation of the medication before discharge reappears. When relapse does occur little good is derived from administration of the drug a second time. Sulfanilamide therapy shows the best results the first few weeks of infection. However, chronic cases of gonorrhea who have not been given the medication previously, respond very satisfactorily to this form of therapy.

In view of this experience, we feel the physician now holds a greater responsibility than ever in the proper control of the infected individual in order to prevent him from infecting others. Heretofore the presence of a constant purulent discharge

has been a deterrent to the individual so far as him transmitting the infection to others. With this absent, unless the patient is repeatedly and emphatically warned by his physician to exercise caution in this regard, an infection will result in an innocent party. Because of this fact we especially wish to deplore the tendency by physicians of prescribing this medication with no complete follow-up management of the infected individual.

Because of the above reasons patients in our clinic undergoing treatment for gonorrhea are managed little different than in the past. Sulfanilamide is given but more dependence is placed on tissue stimulation by regular daily local treatment in addition to other therapeutic measures. We feel that the cure of gonorrhea is based on the development of a definite tissue immunity to the disease, slowly built up and this requires weeks to become effective. The conduct of the individual undergoing treatment is an all important factor and only by seeing these patients frequently can we obtain the best standards of cooperation. Little promise of an early cure is held to the individual despite the optimistic evidence of clear urine and no discharge. After three or four weeks of such routine treatment we observe the case for an equal length of time and then endeavor to activate any possible latent infection that is present by the administration of vaccine and the passage of sounds.

Unless the profession in general realize this particular limitation in the use of sulfanilamide for the treatment of gonorrhea, society will see within the next few years a spread of this disease to a degree hitherto unnown.

How may the physician evaluate the probability of cure? A review of the progress of the case under treatment will be found of prognostic value in this regard. If the treatment response has been uniform, that is, there has been a gradual diminution of signs and symptoms without relapses, he may feel confident that immunity has been effectively and completely acquired. On the contrary, if the patient required an unusual length of time to recover, and his clinical course was marked by repeated exacerbations of inflammatory activity, the complete cure of the disease should be viewed with suspicion. Quite often these patients will harbor a quiescent foci in some tiny gland that will explode into clinical activity at the slightest provocation. But, as stated before, rarely will these patients be completely free from all signs of the disease. Invariably massage of the prostate or a centrifuge specimen of the urine will reveal some evidence of inflammatory reaction.

What is the clinical evidence of cure? To tabulate:

1. Three months must elapse in which the individual is free from all manifestations of the disease.
2. No microscopic evidence of inflammation must be present following examination of the urethral secretion, the centrifuged urine and the prostatic secretion. Such examination should be performed at least three times, at intervals of three or four days.
3. The passage of a medium caliber sound must not be followed by any purulent discharge and what secretion is produced must be examined and found free from any specific bacteria.
4. Indulgence in normal sexual activity as well as the drinking of alcholic beverages must not produce any evidence of disease.

In conclusion it is well to advise a blood Wasserman test to be performed some time before dismissal, even when definite local evidence of syphiletic infection has been lacking. As this disease is contracted usually in the same environment as gonorrhea and as an intra-urethral chancre may be masked by a gonococcal infection, one will occasionally diagnose a syphilitic infection which otherwise would have gone undetected.

[THE END]

To the Members of the House of Delegates and to the Presidents and Secretaries of the County Medical Societies of the State of Oklahoma:

By unanimous agreement of a quorum of the Council of the Oklahoma State Medical Association, in called session assembled at Oklahoma City, September 30th, 1937, and by authority vested in me as President of the Oklahoma State Medical Association, and because of the pernicious medical bill recently initiated and which is proposed to be submitted to a vote of the people, I hereby call a meeting of the House of Delegates of the Oklahoma State Medical Association to assemble at

The Skirvin Hotel, Oklahoma City, at Six P. M. Wednesday, Nov. 3, 1937

for the purpose of considering said proposed bill and other legislation that may be proposed.

Furthermore, by authority of the Council in the above mentioned meeting, I invite and urge all Presidents and Secretaries of County Medical Societies of Oklahoma to attend and participate in this meeting.

The dinner will be Dutch and $1.00 per plate and served at 6 o'clock sharp, after which able speakers will discuss our problems pertaining to medical laws.

SAM A. McKEEL, M. D.
President Oklahoma State Medical Association.

Ada, Oklahoma
October 10, 1937.

THE JOURNAL
OF THE
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DR. L. S. WILLOUR.....Editor-in-Chief
McAlester, Oklahoma

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McAlester, Oklahoma

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in The Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the Editor, McAlester Clinic, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

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EDITORIAL

FALL CLINICAL CONFERENCE

The Eighth Annual Fall Clinical Conference of the Oklahoma City Clinical Society will be held November 1-4, at the Biltmore Hotel in Oklahoma City. This post-graduate medical assembly again offers the profession of the Southwest another series of intensive clinics and lectures covering the most important fields of medicine, surgery, and the specialties. The sixteen guest lecturers this year are among the recognized leaders in their respective fields and have chosen very practical subjects. In addition to the distinguished guests, the program includes seventy-two lecturers selected from local members of the Society, all of whom have teaching ability and practical experience in their particular subjects.

The officers and members of the Oklahoma City Clinical Society, being cognizant that the rapid development of new facts and theories in the field of medicine necessitates frequent post-graduate instruction for those who would progress, have arranged in this course a four-day period of very intensive instruction at a most nominal expenditure of time and money for those who attend. Those of us who have attended this conference in the past have been impressed with the precision in which the program is carried on, the diversity of it, the practical experience gained from the lecturers and our direct association with them, and the wholehearted hospitality accorded all visitors. We feel that the stimulation received from attending these meetings always tends to bring the profession into a closer understanding of its problems and into a closer fellowship as members of our great profession.

The announcement of the coming meeting will be found on first cover page of this issue of The Journal, and we are sure you will be impressed with the prominence of the guest speakers and the program in general. We believe you should attend this meeting and that you will be well repaid for the time spent there.

AN OBLIGATION

In this issue of the Journal appears the fifth and final installment on the subject of "Gonorrhea in the Male." This has been a very exhaustive treatise on this subject and has been published for a very definite purpose. It has been generally observed that this disease is poorly and inadequately treated by many practitioners, which has caused much suffering to the patient with the initial infection, as well as a communication of the disease to many innocent parties. The treatment of gonorrhea in the male is not a simple procedure and should not be undertaken unless the physician is prepared to carry out scientific treatment and meet all complications which may arise. No gonorrheal patient should be discharged, as cured, unless all of the observations are made as you will

find indicated in this last installment, and if this is observed the number of young wives that go to the operating table for mutilating pelvic operations will be many less, as will also the number of cases of sterility in the patient, as complicating epididymitis will be much more infrequent.

We are therefore not only obligated to the patient himself but to society in general.

SPEAKING BUREAU OF STATE HEALTH DEPARTMENT

The following list will be available for County Medical Society prgram:

Dr. Paul J. Collopy, Pediatrics and Obstetrics

Dr. R. M. Adams, Venereal Disease Control

Dr. W. O. Murphy, Tuberculosis and Chest

Dr. M. R. Beyer, Communicable Diseases

Dr. J. T. Bell, Assoc. Pediatrics and Obstetrics

Dr. Chas. E. Leonard, Public Health

Jo C. Rose, Vital Statistics

Dr. Chas. M. Pearce, State Health Commissioner

We have made contact with the superintendents of the mental institutions and they will be glad to send a man to speak on neurosyphilis and other mental diseases.

For any request for speakers please address State Health Commissioner, Dr. Chas. M. Pearce. It is requested that two weeks notice be given.

News of the County Medical Societies

OKMULGEE County Medical Society met September 27th at the Hotel Belmont, Okmulgee, for their first fall meeting. Following the dinner at 6:30 Docotors C. J. Fishman and Jess D. Herrmann, both of Oklahoma City, poke on the subject "Symptosium on Complications and Sequelae of Head Injuries."

KAY County Medical Society met September 16th for their first meeting. The subject of Liability Insurance was discussed, and Drs. Berry, Blackwell and Moore, Ponca City, were appointed as a committee to investigate the matter.

Books Received and Reviewed

TEXTBOOK OF SURGERY, by American Authors. Edited by Frederick Christopher, B. S., M. D., F.A.C.S. Associate Professor of Surgery at Northwestern University Medical School. Cloth, 1682 pages. Price $10.00. W. B. Saunders Company, Philadelphia, 1926.

One Hundred eighty-four distinguished surgeons have contributed to this volume and it has been very carefully edited and compiled by Dr. Christopher. The contributions of the various authors on the subject on which they are most proficient and familiar is an excellent idea as will be evident to anyone who studies this book. It is profusely illustrated, the illustrations carefully portraying the subject matter of the text. The index is very complete, which decidedly increases its value, as this accomplishes a very ready reference. The book is decidedly more applicable to the practices of the surgeon than to the student and leaves very little to be desired as a book of reference to the practicing surgeon.

THE OKLAHOMA STATE DIETETIC ASSOCIATION

The Oklahoma State Dietetic Association was organized in Oklahoma City on May 15, 1937. The Oklahoma City Dietetic Association sent invitations to all the dietitans in the state on the American Dietetic Association list asking them to be present at a meeting on Saturday afternoon, May fifteenth, at the University and Oklahoma Club in Oklahoma City. Twenty dietitians came and officers of the first Oklahoma State Dietetic Association were elected and the constitution adopted.

The officers for this year are:

Miss Ann Hains, President, Administration Dietitian at St. Anthony Hospital, Oklahoma City.

Mrs. Murl Campbell Roby, Vice President, Consulting Dietitian, Tulsa.

Mrs. Margaret Durrett, Treasurer, Dietitian at Oklahoma General Hospital, Oklahoma City.

Miss Eva Gibson, Secretary, Dietitian at Veterans' Hospital, Sulphur.

DR. ALVA A. WEST

On July 1, 1937, Dr. Alva A. West, Guthrie, passed away as a result of cerebral hemorrhage, at the age of sixty-four years.

He was a graduate of Northwestern University Medical School of Chicago, Ill. In 1906, Internship at Lake View Hospital Chicago, and took post graduate work at several European Universities specializing in surgery.

He was a member of the Logan County Medical society and State Medical Association for the past thirty years.

He was a member of the First Methodist church, and Thirty-Second degree Mason.

He is survived by his wife and one son. Services were held at the First Methodist Church, and he was laid to rest in Summit View Cemetery.

The Chairmen of committees appointed by the president are:

Community Education—Mrs. A. N. Wilkins, Leedey, Okla.

Administration—Miss Mary Barnes, Dietitian at A. and M. College.

Diet Therapy—Miss Veda Bailey, Dietitian at Wesley Hospital, Oklahoma City.

Professional Education—Miss Laura Miller, Professor of Nutrition, Oklahoma University.

Following the meeting a banquet was held at the Oklahoma Club. The speakers were Dr. LeRoy Long, Sr., who made a most gracious address welcoming the new organization into medical circles of the state and wishing it success; the second speaker was Miss Florence H. Smith of Guthrie, a former president of the American Dietetic Association. She gave a very interesting history of the American Association which was organized in 1918, and told of some of her pioneering experiences as national president.

The first executive meeting was held in Sulphur, June fifth. A Sunday morning breakfast was given at the Artesian Hotel by Miss Eva Gibson in honor of the officers. Following the breakfast a business meeting was held. Later they ate lunch at the Veterans' Hospital where they met Dr. F. E. Sadler, superintendent, who has taken a great interest in the new organization. On June the nineteenth the second executive meeting was held in Tulsa where the officers were guests of Mrs. Murl Campbell Roby, the vice-president; and on July the eleventh the third meeting was held at St. Anthony's Hospital, Oklahoma City, following which Miss Ann Hains, president, gave a lovely buffet supper.

These meetings were held to perfect the state organization. Committee chairmen were appointed; each committees' work was outlined; policies of the group decided upon, etc.

Qualifications of Dietitians

The membership of the Oklahoma Dietetic Association is now composed of twenty women who are required also to be members of the American Dietetic Association.

Anyone who meets the following requirements is eligible to be an active member: Any person who possesses the following education and experience, and whose application has been accepted by vote of the Membership Committee may become an active member of the Association, subject to the approval of the Executive Committee.

EDUCATION: (1) A bachelor's degree from an accredited college or university with a major in Foods and Nutrition or Institution Management which is recognized by the Executive Committee, or (2) A Bachelor's degree from an accredited college or university followed by courses to complete a major in Foods and Nutrition or Institution Management which is recognized by the Executive Committee.

EXPERIENCE: Subsequent to the completion of the foregoing educational requirements each active member shall have had experience as follows: (1) Satisfactory completion of a course in applied nutrition or institution management approved by the Executive Committee, or (2) At least two years successful experience in a position of responsibility as dietitian in a hospital, cafeteria, dormitory, lunch room, hotel, or similar field approved by the Executive Committee, or (3) At least two years successful experience in teaching such professional subjects as dietetics, or nutrition, or foods, or institution management, or (4) At least two years of successful experience in Community or Clinic Education in foods and nutrition, or (5) At least two years of successful experience as foods, nutrition, or equipment advisor to an organization or publication, or (6) Published original investigation in foods, nutrition, or institutional management.

One of the purposes of the state association is to maintain standards of the American Dietetic Association, and eliminate persons who call themselves dietitians and nutritionists without meeting the requirements. All hospital detitians are required to have a degree in Foods and Nutrition from a recognized college, and a year's internship in an accredited hospital giving a special student dietitian course.

Qalifications of Dietitians (Personal)

The qualifications dietitians should possess have been listed often: the first and foremost is innate administrative ablity, (2) sound technical foundation that meets the semester hour distribution of subject matter required by the American Dietetic Association with particular emphasis on the social and biological sciences and institution management, (3) character, personal appearance and dynamic personality that are known to be co-ordinating assets of all true executives, (4) manuel dexterity, unusual foods skill and refinement of sensibilities with a keen sense of taste, smell and color appreciation, (5) adequate liberal arts foundation, especially English, art, design, and general personal refinement and culture, (6) a real liking for people, (7) a consuming interest in the work coupled with superior health, a sense of humor and creative imagination.

The administrative side of dietetics is being more emphasized because any dietitian who progresses far in her profession, outside of pure research, has to depend in a great measure on her administrative ability. Many phases of her work besides a knowledge of nutrition, are becoming more and more important.

At present the Oklahoma State Association has twenty members. These women will try to stimulate interest in their communities by (1) group instruction (in health clinics, baby welfare stations, schools, churches, clubs, and hospital clinics), (2) radio talks, (3) newspaper articles, one of the best mediums of bringing help to families.

CONCLUSION

It is the aim of the Oklahoma State Dietetic Association to cooperate in every way with the medical profession.

EVA GIBSON, Secretary.

The Amount of 'Benzedrine' In a Therapeutic Dose With 'Benzedrine Inhaler.'

By means of a special measuring apparatus Simpson and Simon (Am. J. Pharmacy, 109:342, July, 1927) determined the average amount of "Benzedrine" (benzyl methyl carbinamine, S.K.F.) inhaled from a therapeutic dose with "Benzedrine Inhaler.' The greatest amount obtained from two inhalations in each nostril (the recommended dosage) was 0.67 mg. and the smallest amount 0.09 mg. The average of the 90 tests made was 0.2 mg.

On this basis it would require 215 inhalations at one time to equal the average oral therapeutic dose of 20 mg. of "Benzedrine Sulfate." Natural loss of "Benzedrine" through exhalation might further widen the margin of safety. It is concluded that serious toxic reactions from the use of "Benzedrine Inhaler" appear unlikely, even with gross overdosage.

ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

PLASTIC SURGERY

Edited by

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The Problems of Unilateral Harelip Repair. Forrest Young, M. D., Rochester, N. Y. S. G. & O. September, 1937.

The author in a very well written article points out the ideals to be attained in harelip surgery. He further states that the possibilities in harelip surgery are not fully realized. The average repair of a harelip leaves a child so marked that it is perfectly evident that the individual is not as you or I.

The ideal then in repairing a harelip is to produce a face which to the casual observer bears no stigma of the original fault. This is a most difficult task and a result not often obtained, but by dint of hard labor and experience, a thing which can be fairly closely approximated. To the highly critical eye none of them will be perfect, but some will be acceptable.

The author points out that the secret of an acceptable result is that the face be normally contoured (symmetrical). He divides the deformities in three groups:

1. The separation of the maxilla, which may vary greatly. There may be a slight notching of the lip, a normal contoured maxilla with the only fault being absence of the lateral incisor tooth in line with the cleft; there may be only slight indentation of the inferior edge in line with the separated lip, and so on until we reach the most marked deformity with wide separation of the maxilla and forward projection of the pre-maxilla on the uncleft side.

2. There is the cleft in the lip. At first glance these seem alike, varying only whether the split extends completely into the nostril or only part way through the lip. This is true for the most part but in many cases there is considerably less available vertical length of lip on the cleft side than on the uncleft. This should be carefully looked for and be considered in the repair, for a slight discrepancy in vertical height of the lip on the two sides, i. e., distance from ala to mouth line, is quite noticeable in the finished product.

3. The third, the deformity of the nose, is the most important of the three, and varies most widely. There is in all unilateral harelips, excepting those which are barely notches in the lip line, abnormality in contour of the nostril on the affected side as well as malposition of the nose as a whole. The nose is shifted to the side opposite to the cleft. The columella lies obliquely inclined from above, downward toward the sound side, so that a line through the base of the columella is not in the horizontal plane, but an oblique one. The nostril in the extreme case may be drawn out into a flat line with the lining of the nares in its lateral aspect flush with the cheek and lip surface, and in such instances, may be mistaken as a part of the lip. The lateral base of the ala may have very little form, almost blending with the cheek.

THE REPAIR. The successful repair of a harelip must overcome the abnormalities mentioned. The cleft in the bone can be disregarded, for there are very few jaw splits which will not close from the pressure of the repaired lip and its constant muscular play, even though the repair is done relatively late. The so-called Brophy operation actually done years before Brophy's popularization of it, is unnecessary and deforming. The wiring of the jaw split destroys or deforms tooth buds, often causing later retrocession of the upper face, and is moreover, attended by some hazards.

The author enumerates several points to be kept in mind in order to attain a normal lip. First, the vertical height of the lip on the two sides should be equal. Second, the vermilion edge should meet smoothly on the same plane.

Types of operation:
1. Rose.
2. Thompson.
3. Mirault.
4. Owen.

The Rose operation is simple but it leaves as a rule an upper lip that is too long to be artistic. The scar is straight instead of staggered.

The Thompson operation also is simple. Its principal fault is that it produces a lip that is too tight along the lower border Also it does not reconstruct the nostril floor.

The Mirault operation sacrifices practically no tissue. It allows for reconstruction of the nostril. It is difficult to produce a smooth vermilion border in this type of operation. And also sometimes the vertical height on the cleft side is a problem as it tends to shorten after operation.

THE NASAL DEFORMITY: The author states that the problem of repairing a harelip is really one of producing a normal nose as nearly as possible. The nose as a whole should be in the midline, columella vertical to the mouth plane, nostril floors on the same level, nostrils same size and shape. Mobilization of the lip on each side is necessary to accomplish the above ideal. The author describes by diagrams the operative steps.

Also he points out that these children should be typed for blood transfusions, should be fed as soon as they are awake, by a medicine dropper and if necessary small saline infusions to keep up the body fluids. The lip is kept clean by peroxide used at frequent intervals. Small saline dressings are applied in case of redness about the wound. Skin sutures are removed in about 48 hours followed by zinc oxide ointment applied to the lip twice a day. Nostrils to be kept clean with tooth-pick swabs. Logan bow is left in place for two weeks. Internal sutures are removed at the end of third week. The child is kept under observation so that any secondary operation or orthodontic procedure can be carried out.

THE OPTIMUM TIME FOR OPERATION: There is rather general agreement that harelips should be repaired as soon after birth as possible. Many men believe that the operation should

be carried out within the first forty-eight hours after birth. The author states that he is not quite in such a rush as this. He thinks the optimum time depends more on how the baby takes feedings and gains weight. Also that is why he would just as soon wait until the baby reaches 4 to 6 weeks of age before operation. He insists that the child be in good physical condition, especially the upper respiratory tract, before operation. A running nose is a definite contraindication to repair. Blood should be available for transfusion, as it is occasionally needed immediately after operation.

COMMENT: The author has a very well written article together with remarks that bespeak of experience. He is very frank in that he admits that all cases do not turn out perfectly, but some are acceptable.

He exhibits wisdom in saying that the child must be prepared before operation. At that time infection is better withstood, there is more lip to work with and I think the final result is better.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
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Carcinoma of the Cervix During Pregnancy. By W. C. Danforth, Evanston, Illinois. The American Journal of Obstetrics and Gynecology, September, 1937

It is indicated that carcinoma of the cervix during pregnancy is rare. Based upon collected statistics, the author estimates the frequency of carcinoma in pregnancy to be 0.0321.

The rarity of the affection is due to the infrequency of pregnancy at the time of life when carcinoma is most frequent, to possible chemical changes in the cervical secretions (Wertheim), to the presence of "a large, necrotic carcinomatous crater upon the cervix;" to obstruction of the cervical canal by tumor tissue.

It is believed that in carcinoma of the cervix during pregnancy the carcinoma was probably present before the pregnancy, but this has not been definitely established. However, it is now known that when there is a carcinoma of the cervix in connection with pregnancy the carcinoma develops very rapidly.

"Nearly all pregnant women who have cancer of the cervix are pluriparas." It appears to be rare in the second pregnancy, and it is very exceptional in the first.

It appears that a continuation of pregnancy is compatible with a small carcinoma confined to the visible portion of the cervix, but if the cervical canal is invaded the patient will probably abort.

Notwithstanding the rarity of carcinoma of the cervix during pregnancy, the author reports the cases of four patients observed in the department of obstetrics and gynecology of Northwestern University Medical School and at Evanston Hospital.

The first patient was 35 years of age, and was four or five months advanced in her second pregnancy. The cervix was large, hard, friable, vascular. A biopsy specimen indicated carcinoma. The uterus was emptied by abdominal hysterotomy, "the intention being to irradiate as soon as possible after the operation." There was infection, peritonitis and death.

The second patient was 37 years of age, in her third pregnancy. There was a small lesion "at the base of a healed laceration." A biopsy specimen indicated carcinoma. In this case the pregnancy, if it existed, was very early. It was decided to do a curettage, to be followed by radium. The tissue removed by curettage revealed "a very small product of conception." There was an introduction of radium into the cervical canal, it being screened by 1 mm. of brass and rubber, "and a palisade of needles each containing 10 mg. was placed about the periphery of the growth." There was recovery. Six years later this patient was alive and well.

The third patient was 23. In the case of this patient the lesion of the cervix was discovered at the time of confinement. Four years previous to that there was a lesion of the cervix with a four plus blood Wassermann. Antisyphilitic treatment caused the disappearance of the Wassermann reaction. There was a one plus Wassermann during pregnancy and after delivery. There was bleeding during the puerperium. A biopsy specimen showed "a highly anaplastic type of epidermoid cancer." The patient was treated by electrocoagulation of the accesible portion of the cervix, and this was followed by 3,500 mg. hours of radium. "The result was unsatisfactory and death followed on October 19, 1934." The investigation of the patient was made January, 1934.

The fourth patient was 36 years of age. She was four months in her second pregnancy. The cervix was enlarged, indurated, vascular. "Two polyps were visible at the external os." A biopsy specimen was reported as follows: "Squamous cell carcinoma of the cervix showing predominance of cells of the basal type and a high degree of anaplasia in some areas." The uterus was emptied through a short incision "as far as possible away from the cancerous area" (presumably, an abdominal hysterotomy). A week later there was an electro coagulation of the accessible part of the cancer, and this was followed immediately by 5000 mg. hours of radium which was employed by means of the Curie colpostat. The immediate results were good, but at the time of writing this article it was too soon to make a prediction as to later developments.

The diagnosis may be easy or difficult. "Advanced carcinoma, presenting cauliflower-like masses, extensive induration, or perhaps a necrotic crater, presents little diagnostic difficulty." When there is but a small beginning lesion the difficulty is increased. The author places considerable emphasis upon the importance of "an area of induration in the cervix." This area is more easily detected because of the soft surrounding tissue. In such a case a biopsy specimen should be secured.

The maternal prognosis was originally very bad, but the employment of radiotherapy has greatly lessened primary mortality. "The increase in permanent cure has not been as striking as the decrease of primary mortality." In an attempt at delivery per vagina in the presence of advanced carcinoma there is great danger in connection with hemorrhage, sepsis, thrombosis, embolism.

In connection with fetal prognosis, it appears to be the tendency to disregard the life of the fetus except in the case of the patient near the normal time of confinement when "the best results for the child are obtained by abdominal Caesarean section."

In the treatment, sub-total hysterectomy has been advised in order to prevent lochiometria resulting from blockage of the carcinomatous cervix.

Vaginal hysterectomy has been suggested, but does not appear to be a very practical procedure.

It is suggested that in the first trimester there should be a radical hysterectomy without previously evacuating the uterus, and this is to be followed by radial therapy in connection with the suspected area, deep x-ray irradiation being usually employed.

"In the second trimester, if the carcinoma is still operable, radical hysterectomy may be done if the surgical mode of attack is preferred. If irradiation is elected local irradiation by means of radium should be used followed by deep x-ray therapy. The fetus will be destroyed and may be expelled spontaneously later. If this does not occur the uterine body with its contents may be amputated, or if the extent of the lesion permits, complete hysterectomy may be done."

It is suggested that in the last trimester "it is well to wait until the child has attained a development which renders extra-uterine life fairly possible before beginning treatment." When the child is thought to be viable, the uterus is emptied, and a sub-total hysterectomy is done—that is, a Porro operation—followed by radium and x-ray.

COMMENTS

In this connection, my father, Dr. LeRoy Long, has told me about a patient upon whom he operated about 30 years ago. At about the expected time of confinement in her seventh or eighth pregnancy there was a very severe uterine hemorrhage. An examination disclosed an enormous cauliflower-like mass completely obscuring the cervix and entirely filling the greater part of the vagina. Audible heart sounds indicated that the fetus was alive. An abdominal Caesarean section was performed, a living and vigorous child being delivered. The mother recovered from the operation, but soon thereafter there was rapid and relentless advancement, terminating in exhaustion and dissolution several months after the operation.

Wendell Long.

Hyperthyroidism in Children Under Five Years of Age. By George Crile, M. D. and George Crile, Jr., M. D., Cleveland, Ohio. The American Journal of Surgery for September, 1937.

The authors report four cases of hyperthyroidism under five years of age, three after thyroidectomy and one after conservative therapy, all recovering.

They feel that hyperthyroidism in children is no different from exophthalmic goiter in the adult and that thyroidectomy is the treatment of choice.

If it is decided to treat a child conservatively (in a mild or early case of hyperthyroidism), it is important to have accurate measurement of the extent of exophthalmus and to advise prompt thyroidectomy if the exophthalmos progresses.

In their experience they do not believe that the mortality rate from operations on children with exophthalmic goiter has been high. In the Cleveland Clinic series only two deaths have occurred in a series of 54 cases of hyperthyroidism in children under fourteen years of age. Since they began using iodine as routine preoperative measure there have been no deaths following thyroidectomy. It is felt that if the patient is adequately prepared for operation and if the post-operative course is carefully managed, there is no reason why thyroidectomy should entail any greater risk in children than in adults. The procedure should be carried out as much as possible under local anesthesia with enough basal anesthesia and gas oxygen analgesia to render the patient cooperative and quiet. After the operation, an adequate carbohydrate intake should be assured and glucose should be given if necessary. In severe cases, it is advisable to administer a solution of ten per cent glucose by means of a continuous intravenous drip.

In normal children the metabolism per unit of body weight is high as compared with adults, and in children with exophthalmic goiter it is extremely high. Children, therefore, tolerate large doses of sedative drugs without much depression. In one of these cases, that of a two and one-half year old boy, there was no depression of respiration after hypodermic injections of 1-8 grain of morphine sulphate. It is important to remember that children with high metabolic rate oxidize and detoxify drugs with great rapidity and that the usual dosages must be increased if the full therapeutic effect is to be obtained.

Morphine is so necessary as a sedative in these patients who cannot otherwise cooperate that hesitancy in the administration of relatively large doses to children should be overcome and the morphia should be given, not in doses calculated on body weight, but, in accordance with the physiological reaction obtained.

They have found that avertin, in doses of 60 to 100 milligrams per kilogram of body weight, has given satisfactory basal anesthesia in operations for exophthalmic goiter in children. Children with hyperthyroidism require relatively larger doses of avertin in order to obtain a given sedative effect. The two and one-half year old boy dozed for 45 minutes after a dose of 100 milligrams avertin per kilogram of body weight and at the end of this time was asking for candy.

The three most common causes of death following operation for hyperthyroidism are: 1 Pneumonia. 2. Cardiac failure. 3. Thyroid crisis. In children there is little danger of post-operative pneumonia, the myocardium is not affected as is so frequently the case in elderly patients, and auricular fibrillation and cardiac failure are rare complications. The chief danger following operation in children is the development of a thyroid crisis with its attendant vicious circle of hyperthermia and hypermetabolism. Thyroid crisis can usually be modified or averted by the parenteral administration of glucose solution, by adequate sedation with morphia, and by use of oxygen, there is little reason to become unduly alarmed about operating upon children.

They believe that children are better operative risks in the presence of hyperthyroidism than has generally been believed and are inclined to abandon preliminary ligation and multiple stage operation in favor of one stage thyroidectomy which can usually be performed without danger.

LeRoy D. Long, M. D.

Thyroid Disease in the Smaller Hospital. By J. William White, M. D., Scranton, Pennsylvania. The American Journal of Surgery for September, 1937.

"Although the major problems of thyroid disease as encountered in the smaller hospital are relatively the same as those met in the larger institution, minor differences in the management of thyroid cases may result in major consequences.

Critical judgment of the merit of any therapeutic measure predicates an intelligent evaluation of the ultimate benefit to the patient; and an appraisal of the results of a method of procedure is best derived from adequate and systematic follow-up studies. A thorough review of case records furnishes a complement of experience that can be attained in no other way. Such review combined with meticulous examination of surviving patients literally brings the thyroid surgeon to judgment.

Provision for follow-up studies is lacking almost universally in smaller hospitals. Professional apathy notwithstanding, there are many obstacles which tend to preclude the issue of reviews from hospitals with fewer than 100 beds. Because of these faulty circumstances, much valuable knowledge is not forthcoming, morbidity and mortality data are

inaccurate and there are many surgeons with an unwitting concept of their work and its results.

The 205 cases reviewed in this study accumulated over a period of thirty years; and although most records were complete a number could not be utilized because much of the necessary information was not recorded. From the details available it was learned that:

The diffuse forms of goiter in both the toxic and non-toxic groups have an earlier age incidence than the nodular forms. The diffuse toxic goiter appears predominently a decade later than the diffuse non-toxic variety. There is not an appreciable difference in the age incidence of the nodular non-toxic and the nodular toxic goiters. Malignancy of the thyroid gland is most common after the fourth decade of life and it usually follows a pre-existing nodular goiter.

As generally understood, and corroborated in these studies, females are more frequently affected by thyroid disease than males. The sexes are affected equally with cancer of the thyroid gland.

Except for the examples of acute thyrotoxicosis, symptoms are of comparatively long duration, averaging approximately five years. Swelling is the most constant complaint. Pressure is complained of more commonly by toxic patients. Nervousness, palpitation and weight loss are not confined to toxic cases. Exophthalmos is approximately twice as frequent as gastrointestinal complaints in thyrotoxicosis.

Evidence is inconclusive as to any deleterious effects resulting from the various anesthetic agents used in this series.

Preliminary ligation of the thyroid arteries is not an absolutely safe procedure and is increasingly giving way to operative attacks on the gland in one or more stages. Subtotal thyroidectomy is the operation of choice, although single adenomatous nodules may be removed locally.

Postoperative complications are usually of serious consequence and require immediate, often heroic treatment. Complications markedly increase the period of hospitalization. The proper use of iodine pre—and postoperatively in toxic cases greatly reduces the incidence of complications and likewise shortens the period of hospitalization.

The mortality rate in goiter surgery is higher in smaller hospitals. It is presumed that the mortality rate, 5.8 per cent, in this series closely approaches the average for thyroid cases in the smaller institution, a major consequence. The immediate surgical mortality rate in cancer of the thyroid gland is much higher than that of other surgical conditions of the gland.

Surgery offers the greatest probability of cure in both non-toxic and toxic goiter; and should be supplemented with radiation therapy in the treatment of thyroid cancer."

LeRoy D. Long.

UROLOGY

Edited by D. W. Branham, M. D.
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Corbus Ferry Filtrate in the Treatment of Gonorrhea in the Male. Michael Wishengrad, New York, Urologic and Cutaneous Review, August, 1937

The author reports the results obtained in a small series of cases (37 acute and 9 chronic) of gonorrhea treated with Corbus Ferry vaccine. Both large and small dosage of filtrate were given in different series. His conclusions were that Corbus Ferry vaccine in the treatment of gonorrhea is contraindicated, however, in some chronic cases it seemed to be followed by slight benefit. Because of the small number of cases reported the latter findings is somewhat in question and the author suggests further study.

They also noted that complications in the form of epididymitis occurred as often with filtrate treated cases as those treated without the preparation.

As a test of cure this preparation proved of no benefit whatever. Five cases definitely proven positive by a nexamination of the smear obtained from the prostatic secretion as well as that elicited by sound were non-reactive to filtrate.

COMMENT

The above findings coincide closely with those obtained by the majority of urologists having had experience with this preparation. In our hands it not only has proven worthless as far as therapeutic results are concerned, but occasionally has produced harm when administered in acute cases.

Contraindications and Complications Incident To Trans-urethral Prostatic Resection. B. Weems Turner, M. D., Houston, Texas. The Journal of Urology, July, 1937.

The author briefly reviews the various factors predisposing to the poor results obtained in prostatic resection. He has critically analyzed 100 cases of prostatic obstruction of the vesical neck treated by him through trans-urethral methods. He has tabulated the various complications met with and he has evaluated the end results obtained by this method. The reasons for the complications arising for resection have been divided under three major headings:

I. Infection
   a. Local.
   b. Remote or circulatory.

II. Mechanical changes in the operative field following resection.

III. Hemorrhage
   a. Immediate.
   b. Secondary.

Infection was the most usual complication; twenty patients had severe infections with pyelonephritis following the procedure. Post operative hemorrhage occurred in sixteen cases of the series, four were immediate and twelve were secondary.

The author summarizes his experience with this method with the statement that though his results are not entirely pleasing they reflect a true picture and he believes an average one. He feels that the method is attended with many dangers in those who have had little experience is gained its use may be extended to a greater number of cases with lessened difficulty.

COMMENT

This is an extremely honest appraisal of a controversial subject. It is only by such frankly tabulated results that the profession in general may obtain a true evaluation of this procedure.

Carcinoma of the Prostate. John R. Caulk, St. Louis. Transactions Southwestern Branch of the American Urological, Omaha, 1936.

A well written article by an urologist of wide experience in which he sums up the practical facts known of this rather prevalent disease. He states that he has never cured a patient of prostatic carcinoma, but has undoubtedly prolonged their

lives with appropriate treatment. He emphasizes early diagnosis by careful rectal palpation of the gland searching for localized or generalized indurations.

The symptoms of prostatic malignancy in most instances result from the obstruction formed by the proliferative tissue at the vesical neck. However, in twenty-two of his cases pain in the back, legs and genitalia from metastatic growths were present.

He cites a few paradoxes regarding the disease: The larger and more malignant the feel the less rapid the growth and the longer the life expectancy; the smaller and more softer, the shorter the life. The older the patient the longer the life expectancy and slower the growth.

Cystoscopic findings were not helpful in most instances except to reveal bladder neck obstruction. So far as treatment is concerned he does not feel that radical operations for various reasons are ever indicated; the same is true of palliative suprapubic cystotomy. He is of the opinion that a combination of radium and deep x-ray therapy in conjunction with transurethral surgical methods for relief of the bladder neck obstructions offer the best method for therapeutic control of this condition.

EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M.D.
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Treatment of Caustic Burns of the Eye. William B. Hubbard, M. D., Flint, Mich. Archives of Ophthalmology, August, 1937.

Cowan and Sinclair's statistical report of blindness in the state of Pennsylvania shows that blindness due to chemical burns is of greater frequence than that due to detached retina.

Clinical observation alone does not enable one to advise as to treatment. Experimental work is necessary. Factors to be considered are: (a) the time that has elapsed before the initial treatment, (b) the amount of the caustic causing the burn, (c) the type of the caustic, (d) the strength of the caustic and (e) the type of treatment.

In the author's previous report (1928) on caustic burns "it was found that, regardless of the concentration of a chemical or of the interval of time before treatment, the proper treatment was to irrigate the eye with water rather than to attempt neutralization." Irreparable damage is done with any concentration of caustic after a certain length of time.

The author suggests that advocates of the neutralization should be very sure of themselves, for advising this form of treatment, for so many times, it is advising practically no emergency treatment for by the time the neutralizing solution is prepared great damage has already been done.

Rabbits were used experimentally. Sulfuric acid was used as the typical acid (32 per cent.) Sodium hydroxide solution was used as the typical alkali (20 per cent.) After these were dropped in the eyes of rabbits, with the aid of two trained assistants, the sulfuric acid was allowed to act for thirty seconds and the sodium hydroxide for ten seconds. Neutralizing solutions used were two per cent, sodium bicarbonate and two per cent acetic acid.

Hubbard found that "between 80 and 100 per cent of the acid burns treated by irrigation with a weak alkai were definitely worse than the acid burn of the opposite eye treated by irrigation with water alone. Seventy-five per cent of the alkali burns treated by irrigation with a weak acid were definitely better than the alkali burn of the opposite eye treated by irrigation with water alone."

Photographs accompany the article showing the eyes twenty-two days after the experiment.

A Method of Closing a Pharyngeal Fistula Following Laryngectomy. Charles J. Imperatori, M. D., New York. Archives of Otolaryngology, August, 1937.

Any opening into the pharynx going through the tissues of the neck may result in a fistula.

Removal of the larynx or transhyoid approach to the inside of the pharynx may occasion this result. These fistulas occur in the region of the base of the tongue or in the tonsillar area. When the straight line incision is used pharyngeal fistula are not so apt to follow. With the aid of plastic surgery these usually close spontaneously.

The presence of an infection which devitalizes the tissues prevents closure of the wound. When irradiation has been used before operation, union rarely occurs spontaneously and if it does, a long period of time is required. Attempts to reunite irradiated tissues usually result in failure. The author's histologic studies of such tissues show structural change of the epidermis and derma with muscular tissue atrophy.

The two principles the author has used in rebuilding the outer pharyngeal wall are:

1. The fistula must be covered by a flap, slid and swung from neighboring tissue as far from the fistula as such a skin flap can be made without too much resulting deformity. Tube grafts may be used, but it was not found necessary in the two cases reported. New edges must be approximated.
2. Swallowing must be abolished as much as possible. This prevents the disturbance of the approximated edges and also prevents the injection of saliva into the edges. This is accomplished by the use of tube feeding and by suction or drainage by gauze to remove the saliva from the mouth.

Two microphotographs are reproduced, one showing the histology of normal skin, and the other showing histologic changes in a chronic roentgen ray dermatitis.

There are two case reports given.

Several illustrations, nicely done, accompany the article. These illustrate the different steps in the suggested method of closure of pharyngeal fistula.

An Investigation Into the Theories on the Formation and Exit of the Intra-Ocular Fluids. J. Dougias Robertson, M. D., London, W. I. The British Journal of Ophthalmology, August, 1937.

This is a forty-five page report on the author's investigation which does not lend itself well to abstracting.

The report is given under three main divisions. First under Historical there is given, the theories of the aqueous formation; the theory of dialysis based on I Chemical equilibrium, II Chemistry of abnormal or plasmoid aqueous, III Osmotic pressure, and IV Relation between osmatic pressure of aqueous and blood.

Second under Experimental there is given: I Interchange of fluid after intravenous 15 per cent. aqueous gum; II Interchange of fluid after haemorrhage and intravenous 6 per cent. gum saline; III Interchange of fluid after haemorrhage and intravenous 15 per cent. gum; IV Interchange

of fluid after haemorrhage and intravenous 0.9 per cent. saline.

Third under Discussion there is given: The circulation of the aqueous; The theory of dialysation —I Question of expenditure of energy, II The chemical equilibrium (a) Non electrolytes (b) Electrolytes, III Chemistry of abnormal and plasmoid aqueous, IV Osmotic equilibrium, V The relation between the intra-ocular pressure and the osmotic pressure of the plasma, (a) After intravenous hypotonic, hypertonic and isotonic crystalloid injections, (b) After colloid injections, (c) Injections after haemorrhage; The relation between oedema and the intra-ocular pressure; The Canal of Schlemm — Structure — Pressure — Connections — Pressure relationships; Functions of Canal of Schlemm—Removal of aqueous by (a) Pressure filtration (b) Osmotic attraction (c) Safety-valve mechanism and (d) active absorption.

There is a large bibliography appended.

Summarizing and concluding the author states: "The views put forward in favour of dialysis for the production of the intra-ocular fluids have been carefully investigated, and it is suggested that the evidence is unconvincing.

There is ample evidence to show that in the production of the aqueous humour there must be an expenditure of energy in the posterior chamber, for the membrane through which fluid passes into the chamber to become aqueous has an irreversible permeability.

There is evidence to show that there is no chemical equilibrium between the blood and aqueous humour. Easily diffusible constituents such as urea, sugar, uric acid, are not present in equal concentrations in blood compared with the corresponding aqueous.

There is evidence that a physical equilibrium does not exist between blood and aqueous and that the equilibrium level of the intra-ocular pressure is not maintained by the hydrostatic force in the capillaries minus the difference in osmotic pressure between the aqueous and blood.

It is suggested that the evidence chemical, hydrostatic and osmotic points to the formation of the aqueous humour by a process of secretion and in addition there is evidence of the necessity for the expenditure of energy in its formation.

The formation of aqueous humour is held to take place by a process of secretion at the ciliary body, and this fluid to move forward to the angle of the anterior chamber and to be actively absorbed into the canal of Schlemm by some process other than osmosis.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D., F.A.C.S.
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Treatment of Tuberculosis of the Elbow by Resection and Arthroplastic Operation in One Seance. Ragnar Magnusson. Acta Orthopaedica Scandinavica, VII, 325, 1936.

Combined resection and arthroplasty was performed in seventeen cases of tuberculosis of the elbow. Abscesses and fistulae were cleaned up at the time of the operation and were not considered a contra-indication. The synovia and all tuberculous material were cut away and a piece of fascia lata was inserted. Motion was started in from two to three weeks and resistance exercises soon thereafter. Massage was not given.

Questionnaires or follow-up examination in sixteen cases showed ankylosis in one and mobility in the remainder. Twelve patients were able to work as maids and seamstresses, and one patient, as a timber floater. All wounds remained healed after the patients left the hospital except for one case in which a fistula formed. Only four patients had occasional pain. The results were better in the cases operated on early in the disease.

Myositis Ossificans. M. H. Hobart. American Journal of Surgery, XXXIV, 227, 1936.

Two types of this condition are described as deposition of bone in muscles or about their insertions, namely, progressive, which usually begins in the muscles along the spine and gradually spreads to all muscles of the body with interference with respiration, and the circumscribed, which is usually confined to one muscle or locality, and, if caused by trauma, may spread more rapidly to reach its maximum degree of involvement.

The theories as to the cause are implantation of periosteum in muscle, or the escape of osteogenic cells from the periosteum, or ossifying hematoma, or metaplasia. It is usually considered that trauma, either mild or severe, in the form of repeated injury, dislocations about a joint, or variations in the treatment of fractures, is a factor in all cases. The more common sites are the brachialis anticus and the quadriceps femoris muscles.

There is a degeneration of muscle fibers, from the pathological standpoint, with infiltration of fibrous tissues, cartilage cells, and normal appearing bone, which may or may not be attached to the bone beneath. The usual symptoms are interference with function, less often pain, and a mass in the muscle becoming larger and firmer, with roentgenographic evidence of shadow, usually seen three or four weeks after injury.

Prognosis is generally good except in cases in which a joint is involved; if such cases are neglected or improperly treated, interference with function may result. Early treatment usually consists of rest, preferably in a cast; in the case of the elbow, stress is laid upon the flexion position to prevent the formation of a mass in the cubital fossa. By the time the diagnosis is made, heat is usually indicated either in the form of diathermy or hydrotherapy. Surgical interference is indicated only if pain is continued or if function is interfered with, and, in some instances, in order to differentiate from tumor. Quiescent cases should not be disturbed. Nine cases are reported in detail.

Earl D. McBride, M.D., F.A.C.S.

Glosso-Pharyngeal Neuralgia. Professor Henry Sohen. Liverpool. The Journal of Laryngology and Otology, August, 1937.

This site and pathology of the lesion must be included in a diagnosis of a nervous system disease.

Pain may be referred to the peripheral distribution of a sensory nerve so we may expect neuralgias associated with any sensory spinal nerve, and with the Vth (trigeminal) and IXth (glossopharyngeal) cranial nerves. Rarely the VIIth (geniculate herpes) and the Xth (superior laryngeal neuralgia) are affected.

Recognition of a neuralgia should not be difficult if the observer has a detailed knowledge of anatomy and the patient describes the site of the pain accurately.

Etiologically there are two groups: 1. Those in which a gross pathological lesion involves the nerve (a tumour, inflammatory exudate, haemorrhage, neuritis, etc.) and those which occur in the absence of any demonstrable pathology even when the pa-

tient is observed over a long perod of time. The author classifies the former as secondary neuralgias and latter as primary neuralgias.

The author's classification of the clinical characteristics of the primary neuralgias are:

(1) The pain is paroxysmal, occuring as stabbing, shocklike thrusts, excruciatingly severe, but of short duration lasting only seconds, and separated by intervals of complete freedom from pain, though of profound apprehension of its return;

(2) stimulation of certain defined points known as "trigger zones" will precipitate paroxysms of pain;

(3) there is an absence of any clinical evidence of loss of function of the nerve; there is no objective sensory disturbance, no motor or secretory change except those which may be reflexly produced during the paroxysm; occasionally trophic changes occur but it is doubtful if these result directly from neurotrophic influence;

(4) the pain recurs at intervals over a period of many years without there being any evidence of spread to neighboring nerves; and

(5) the onset is usually in middle or old age.

The author's classification of the clinical characteristics of the secondary neuralgias are:

(1) a pain of a boring, aching type which is constantly present, though subject to exacrebations;

(2) the pain is accompanied by objective evidence of nerve involvement, e. g. anaesthesia, reflex change, muscle wasting, etc.

(3) evidence of progressive involvement of neighbouring structures tends to appear; and

(4) no age is immune.

The most common site of primary neuralgia is along the distribution of the trigeminal nerve (so-called tic douloureux.)

A diagrammatic sketch shows the distribution of the glosso-pharyngeal nerve which the author explains in detail.

Cases are reported illustrating both primary and secondary glosso-pharyngeal neuralgias.

Medical treatment of primary glosso-pharyngeal neuralgia is discussed. The author's opinion is that the correct treatment is essentially surgical and all others are simply palliative.

The phenomena of a transient rise of blood pressure following section of the glosso-pharyngeal nerve is explained.

One of the concluding statements is that the absence of pain does not exclude irritation of a sensory nerve.

THE TRAINING OF MEDICAL TECHNOLOGISTS

(Paper read by Dr. Phillip Hillkowitz, Chairman of the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists, before the Oklahoma Society of Medical Technologists, Oklahoma City, April 24, 1937.)

The use of the laboratory as an aid to diagnosis and treatment of disease necessarily brought with it the resort to physicians who, by virtue of special study and experience, engaged in this specialty of using and evaluating laboratory methods. In the course of development these workers became known as clinical pathologists. In the early days they personally performed all the tests and even attended to the drudgery of cleaning their glassware and apparatus. The writer can testify to this plebian task in his own experience in the course of evolution of this field of medicine.

With the increase of the work and the expansion of routine laboratory methods to the hospitals it soon became apparent that lay help was necessary. And so arose the calling of the clinical laboratory technician now known by the more euphonious name of medical technologist.

There was no check up on the qualifications of laboratory workers. Many with but a smattering of the subject held down responsible positions, regardless of the fact that their findings spelt the weal and woe of the patients. The scientific as well as the social status of the worker was at a low ebb. The inferior esteem in which they were held by their fellow hospital employees may be gauged by the unwillingness of nurses to have them sit at their table in the dining room. In short, chaos reigned supreme in the field of laboratory aids.

Then came salvation when in 1928 the Registry of Medical Technologists was established by the American Society of Clinical Pathologists. The members of this Society, deeply cognizant of the necessity for well trained laboratory workers not only for themselves but for hospital and practitioners of medicine, inaugurated the system of giving certificates of profiency to those workers who passed muster and eliminating the unfit from the ranks of those aspiring to this important calling.

This is not the place to dilate on the tremendous change the registry has wrought in this noble profession, a revolution as real and as far reaching as that effected by Florence Nightingale in the allied profession of nursing. The subject of this paper being limited to training we may well take up the second scope of the Registry of Medical Technologists of the American Society of Clinical Pathologists, namely, to insure for the future the creation and growth of a class of laboratory workers able by education and practical experience to carry out properly the intricate tests now required in the modern practice of medicine. To bring this about the Board of Registry has gradually raised the standards giving ample time for hospitals as well as students to adjust themselves to the new requirements.

The first point of attack was the preliminary education of the students. Originally a high school diploma was considered sufficient. It soon became apparent that this requisite was deplorably inadequate. Aside from the fact that high schools differed markedly in their basic teaching, the amount of knowledge in the natural sciences absorbed by these graduates was very meager or even nil. It seemed a woeful waste of valuable time to spend energy on teaching studerts the bare fundamentals of chemistry and biology before they comprehend even the ordinary laboratory tests. To have them carry out procedures parrot-like without knowing the reason why would be producing mere automatons or robots, as we find in industry, without any initiative or resourcefulness.

In view of the thousands of young women and men who graduate annually from the science departments of our colleges and universities, without finding a ready means to utilize their knowledge in earning a living, it was but logical to utilize this talent, thirsty for a profitable vocation, and divert them into the channel of laboratory technique. Accordingly the Registry proceeding with due caution announced as a prerequisite the completion of a year of college including courses in chemistry and biology. This reasonable minimum met with a practically unanimous favorable response by clinical pathologists and training schools. A few dissenting voices were heard which based their objec-

tions on the valid thesis that college education per se is no index of brain capacity or intelligence. It is readily admitted that geniuses or supermen may arise from the ranks who have had no college education but it does not vitiate the fact that the only criterion we can go by is a grounding in the fundamentals—the same touchstone that is used by the medical and other professions.

The registry is now ready to proceed with the next step in the evolution of technical training promised sometime ago. Beginning with 1938 a minimum of two years at college will be required with emphasis on the basic sciences of chemistry and biology.

We can foresee the time when this will be extended to a complete college course. As a proof that events are shaping themselves in this direction may be cited the number of approved schools that have voluntairily established this high requirement. To save an additional year a number of schools are giving the degree of Bachelor of Science in Medical Technology to students who have pursued three years of pretraining curriculum on the campus and the fourth in practical hospital work under the direction of a recognized clinical pathologist.

Now as to the technical training proper: the Registry has set a minimum of twelve months' practical instruction in a school approved by the registry. For the present the apprenticeship system under proper auspices, i. e., a qualified clinical pathologist with adequate hospital affiliations is still valid. Until ample facilities are afforded by existing schools to take care of all applicants, instruction of one or two apprentices by the individual clinical pathologist may still be necessary. The time is not far distant, however, when all aspirants for training will obtain these courses under the aegis of a university or college of learning with its concomitant academic and scientific atmosphere and inspiration. Naturally the strictly technical courses will be conducted in the hospitals affiliated with these institutions where the students come in direct contact with the patients, away from the cloistered life of the university proper and are compelled to come face to face with the prosaic facts of a cold world.

Another glaring virtue of the four or five year school is the elimination in the first year of those students who either by temperament or lack of endowment will not make good technicians, thus saving wasteful trial and error methods. Much is expected of the properly trained medical technologist besides scientific and technical attainments; unimpeachable integrity, evenness of temper, happy disposition, cooperativeness, neatness and a host of other admirable qualities not realizable in practice in a poor human being with all the frailties that flesh is heir to.

At the present time the registry has on its rolls one hundred fifteen approved schools spread over the entire United States where students may secure the desired proficiency in this calling. Ever since the inception of the Registry a militant battle has been waged against the so-called commercial schools who from mercenary motives and by the aid of highly colored prospectuses were luring unwary students to their ill-equipped and poorly staffed quarters charging exorbitant tuition fees and leaving them in the end tragic dupes unable to obtain employment. Fortunately this vicious type of exploiting school has virtually been eliminated thanks to the publicity instituted by the registry and the cooperation of hospitals in shutting their doors against their graduates.

A powerful ally in strengthening the standards of training schools is the Council on Medical Education and Hospitals of the American Medical Association. The great resources of this efficiently manned department in the investigation of medical schools and of hospitals for approval of interne training have been freely lent to the Registry in the personal inspection of training schools by members of their staff. The Council and the Registry jointly and in mutual consultation pass on the competence of schools and of their directors to carry out efficiently their function.

Judging from its rapid progress and successful advancement in the past, the future offers a rosy picture of a stabilized yet dynamic system of techthe side of its older sister schools in the learned arts.

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